

# CRFS SAMPLER MANUAL

CALIFORNIA RECREATIONAL FISHERIES SURVEY



A Cooperative Program of:  
California Department of Fish & Game  
Pacific States Marine Fisheries Commission  
National Marine Fisheries Service



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**TABLE OF CONTENTS**

<b>INTRODUCTION TO CRFS .....</b>	<b>1</b>
CRFS OVERVIEW .....	2
FISHERY BACKGROUND .....	2
RECREATIONAL SURVEY HISTORY .....	4
MRFSS .....	4
Ocean Salmon Project .....	4
CRFS .....	4
GENERAL CRFS SURVEY DESIGN .....	5
Geographic and Time Divisions .....	5
CRFS Catch and Effort Structure .....	6
CRFS TELEPHONE SURVEYS .....	7
Angler License Survey .....	8
Party Charter Phone Survey .....	8
CRFS INTERCEPT SURVEYS .....	8
Ocean Salmon Project (OSP) CPFV Survey .....	8
OSP Coordination .....	8
CPFV Logbooks .....	9
Man Made (MM) Structure Angler Survey .....	9
Beach and Bank (BB) Angler Survey .....	10
Primary Party and Charter Boat (CPFV) Angler Survey .....	10
Primary Private Boat (PR1) Survey .....	10
Secondary Private Boat (PR2) Survey .....	11
<b>ROLES AND RESPONSIBILITIES .....</b>	<b>13</b>
THE SUPERVISOR .....	13
Supervisor Communication .....	13
THE SAMPLER .....	13
Professional Conduct .....	14
Attire .....	15
WORKING WITH OTHERS .....	15
Managed Sites .....	15
Other Samplers at the Site: .....	16
Other agency field programs .....	16
CDFG Wildlife Protection Officers (Wardens) .....	16
Fishery Violations .....	16
PUBLIC OUTREACH .....	18
Speaking with the Public .....	18
Printed Materials .....	19
Electronic Materials .....	20
YOUR SAFETY .....	21
Driving to the Site .....	21
Safety at the Fishing Site .....	22
Criminal Activity .....	23

Uncooperative and Abusive Anglers .....	23
Report Accidents .....	23
Safety on CPFV Boats .....	24
Lifting Fish .....	24
Handling Fish .....	25
Handling Wild Birds .....	27
GENERAL ON-SITE PROBLEMS .....	28
Rain/Bad Weather .....	28
Refused Entry to Site .....	29
Tournaments .....	29
Parking .....	29
EQUIPMENT & SUPPLIES .....	30
Supply List .....	30
Coding Forms .....	31
Editing and Mailing forms .....	31
<b>SAMPLING ASSIGNMENT MANAGEMENT .....</b>	<b>37</b>
SITE ASSIGNMENTS .....	37
Assignment Selection .....	38
Sample Assignments .....	39
Pressure Checks .....	39
Adding / Removing sites .....	40
Maps / Descriptions .....	40
BB AND PC ASSIGNMENTS .....	40
Sub-region and District Goals .....	41
Assignment Goals .....	41
Scheduling PC Trips .....	41
Selecting a PC Boat at a Site with Multiple Boats .....	42
Sampling Charter Trips .....	42
PC Boat Refusals .....	43
Special PC Assignment Summary and Vessel Check Instructions ..	44
PC Scheduling Questions and Answers .....	45
BB and PC Site Selection Options .....	46
Alternate Site Problems and Solutions .....	47
Two BB or PC Assignments in One Day .....	48
MM AND PR2 ASSIGNMENTS .....	48
Sample Selection .....	49
Site Lists and the Target Mode .....	49
PR1 ASSIGNMENTS .....	50
Sample Selection .....	50
Multiple Samplers on One Assignment .....	51
<b>THE ASSIGNMENT SUMMARY FORM (ASF) .....</b>	<b>53</b>
ASSIGNMENT SUMMARY FORM (ASF) LAYOUT .....	53
ASF Assignment Items .....	53

## CRFS Sampler Manual

ASF Sampler Items.....	53
ASF Site Rows .....	54
ASF Location and Time Items.....	54
ASF MMPR2 Cluster Items.....	54
ASF Angler Form / PR1 Boat Counts .....	55
ASF Angler and Boat Estimated Effort (Pressure) Items.....	55
Footer - Section 7: PR1 Totals .....	57
ASF ITEM BY ITEM INSTRUCTIONS .....	57
ASF CODING TIPS .....	65
Specific Editing Checks .....	66
Example Forms .....	67
<b>GENERAL ON-SITE PROCEDURES .....</b>	<b>73</b>
NO ANGLERS .....	73
No Anglers in PC and BB Modes.....	73
No Anglers in PR1 Mode .....	73
No Anglers in MMPR2 Mode.....	74
Finishing a MMPR2 Assignment Early .....	74
CANVASSING .....	74
SCREENING FOR ELIGIBILITY .....	74
Screening Divers.....	75
Probe for Multiple Trips .....	75
Saltwater Cutoff Points .....	75
Definition of an angler trip.....	76
“RANDOM” SELECTION.....	77
Angler Sub-sampling.....	77
Fish Sub-sampling .....	78
CATCH OR FISHING LOCATION.....	78
Essential fish habitat (EFH) .....	78
Refugia .....	78
Latitude and Longitude .....	79
One Minute Grid.....	79
Angler use of Maps .....	80
CDFG Block and Box (microblock).....	80
Location Gathering Guidelines.....	81
Open Water Fishing Sites .....	83
USE OF CODE LISTS .....	84
Angler Residence Codes .....	84
Site Codes.....	84
Species Codes .....	84
THE CATCH CENSUS .....	84
Identification of difficult species.....	85
Priority Species.....	85
Rare Specimen Collection / Photography.....	86
Fish Sub-Sampling Procedure .....	87

## CRFS Sampler Manual

Fork Length Measurement.....	87
Use of the Standard Measuring Board .....	87
Measuring Various Types of Fish.....	88
Weight Measurement .....	91
Dealing with Fillets .....	93
Gender Determination of Selected Species .....	94
Angler Reported Species Names.....	95
SALMON HEAD SAMPLING .....	96
Legal Authority .....	97
Salmon Equipment.....	97
Tagging the Head .....	98
Removing the Head.....	98
Procedures for Tracking and Inventorying Salmon Heads.....	99
Courtesy Head Tags.....	100
Important Salmon Goals to Remember.....	100
Salmon Head Drop Off Protocol.....	101
FORM SELECTION .....	101
Form Differences .....	102
<b>ANGLER SURVEY PROCEDURES .....</b>	<b>103</b>
BB SAMPLING.....	103
Sampling BB Sites.....	104
Incomplete BB trips .....	104
MM SAMPLING.....	104
Sampling MM Sites.....	105
Sampling MM Anglers .....	106
PR2 SAMPLING .....	107
Sampling PR2 Sites.....	107
Sampling PR2 Boats and Anglers .....	108
MMPR2 X-EFFORT CODING .....	109
MM X-Effort between interviews. ....	109
PR2 X-Effort between interviews. ....	110
Status Zero / 15 Minute Rule Instructions .....	110
X-Effort Coding Tips.....	111
<b>THE ANGLER FORM.....</b>	<b>113</b>
QUESTIONNAIRE USAGE .....	113
ANGLER FORM LAYOUT .....	113
Header Items.....	113
Intercept Items .....	116
Effort Items .....	116
Boat Items .....	117
Location Items .....	117
Target Species and Catch Items .....	117
Angler Items.....	118

## CRFS Sampler Manual

<i>Reported Catch Items</i> .....	118
<i>Examined Catch Items</i> .....	118
ANGLER FORM ITEM BY ITEM INSTRUCTIONS .....	118
COMMON ERRORS.....	133
<i>Specific Editing Checks</i> .....	134
<i>Leave Blank Coding</i> .....	134
<i>Example Forms</i> .....	137
<b>PR1 BOAT SURVEY PROCEDURES.....</b>	<b>147</b>
INTRODUCTION .....	147
<i>Effort Data</i> .....	147
<i>Catch Data</i> .....	147
<i>Location of Catch data</i> .....	147
<i>Measurement Data</i> .....	147
SAMPLE SELECTION.....	148
<i>Scheduling of Days</i> .....	148
SAMPLING THE BOATS .....	148
<i>Definition of PR1 Boat Types</i> .....	148
<i>Sub-sampling Boats</i> .....	149
<i>Effort Data Collection</i> .....	149
<i>Catch Data Collection</i> .....	150
<i>Measurement Data Collection</i> .....	151
<i>Location Data Collection</i> .....	151
<i>Minimum CRFS Sample</i> .....	152
<b>THE PR1 FORM .....</b>	<b>153</b>
INTRODUCTION TO THE BOAT INTERVIEW .....	153
<i>Before you Sample</i> .....	153
<i>Arrival on Site</i> .....	153
<i>Trailer Counts</i> .....	155
<i>Monitoring the Boats</i> .....	155
<i>Determination of Boat Type</i> .....	156
<i>Getting Anglers and Days Fished</i> .....	157
<i>Determination of Catch</i> .....	157
<i>Examining Catch</i> .....	157
<i>Salmon Tagging</i> .....	157
<i>Unavailable Catch and Marine Mammal Losses</i> .....	158
<i>Catch Location</i> .....	158
<i>Measuring Catch</i> .....	158
<i>Boat Interview Priorities</i> .....	159
PR1 FORM LAYOUT .....	159
<i>Header Row Items</i> .....	160
<i>Individual Boat Items</i> .....	160
<i>Individual Fish Data</i> .....	160
<i>Total Items</i> .....	160

## CRFS Sampler Manual

<i>Salmon trip data</i> .....	161
PR1 FORM QUESTIONNAIRE .....	161
PR1 FORM ITEM BY ITEM INSTRUCTIONS .....	161
PR1 FORM CODING TIPS.....	173
<i>Specific Editing Checks</i> .....	173
<i>Example Forms</i> .....	174
<b>CPFV SURVEY PROCEDURES.....</b>	<b>177</b>
PC DEFINITIONS .....	177
WHEN TO RIDE OR SAMPLE DOCKSIDE.....	178
DOCKSIDE SAMPLING .....	178
<i>Angler Form Special Coding</i> .....	179
INTRODUCTION TO ON-BOARD SAMPLING.....	179
<i>Conduct of this Study</i> .....	179
<i>On-Board Observer Legal Rights</i> .....	181
<i>On-board Fishing Locations</i> .....	182
<i>On-Board Catch by Location</i> .....	183
<i>On-board Pinniped Observations</i> .....	183
ON-BOARD THE BOAT TRIP .....	187
<i>Arrival at a PC Site</i> .....	187
<i>On the Way Out</i> .....	188
<i>During Fishing</i> .....	188
<i>On the Way Back</i> .....	189
ON-BOARD SAMPLING TIPS.....	189
<b>THE CPFV FORM .....</b>	<b>191</b>
CPFV FORM LAYOUT.....	191
<i>Boat Assignment Data</i> .....	192
<i>Fishing Location Data</i> .....	192
<i>Species Count Data</i> .....	193
<i>Refused Items</i> .....	193
CPFV ON-BOARD LOCATION FORM ITEM BY ITEM INSTRUCTIONS....	194
CPFV FORM CODING TIPS .....	199
<i>Trolling between Locations</i> .....	199
<i>Non Stop trolling</i> .....	199
<i>Specific Editing</i> .....	199
<i>Specific Editing</i> .....	200
<b>THE DISCARDED FISH FORM.....</b>	<b>201</b>
INTRODUCTION TO THE DISCARDED FISH FORM.....	201
DATA COLLECTION.....	201
<i>Representative Sampling of Discards</i> .....	202
<i>Sampling Discards Aboard CPFV Trips</i> .....	202
<i>Sampling Discards Ashore</i> .....	203
<i>Eligible Fish</i> .....	203

## CRFS Sampler Manual

<i>Ineligible or Duplicate Fish</i> .....	203
DISCARD FORM LAYOUT .....	204
<i>Major Mode and Area</i> .....	204
DISCARD FORM ITEM BY ITEM INSTRUCTIONS .....	205
DISCARD FORM CODING TIPS .....	207
<i>Usage Tips</i> .....	207
<i>Data Entry Tips</i> .....	207
<i>Specific Editing Checks</i> .....	208
<i>Discarded Fish Form Examples</i> .....	209
<b>THE VESSEL CHECK FORM .....</b>	<b>211</b>
INTRODUCTION TO THE VESSEL CHECK.....	211
<i>Purpose</i> .....	211
DATA COLLECTION.....	211
<i>Vessel Lists</i> .....	212
<i>Scheduling Checks</i> .....	213
<i>Docked Status</i> .....	214
<i>Activity Determination</i> .....	214
<i>Monitoring Cooperation</i> .....	215
<i>Identify New or Changed Vessels</i> .....	216
VESSEL CHECK FORM LAYOUT .....	216
<i>Coding the Check</i> .....	216
<i>Submitting Forms</i> .....	216
VESSEL CHECK FORM ITEM BY ITEM INSTRUCTIONS.....	216
VESSEL CHECK FORM CODING TIPS .....	218
<i>Specific Editing Checks</i> .....	219
<i>Example Forms</i> .....	220
<b>QUESTIONNAIRES .....</b>	<b>221</b>
ANGLER FORM QUESTIONNAIRE.....	221
PR1 FORM QUESTIONNAIRE .....	228
<b>SPECIES CODES .....</b>	<b>233</b>
SORTED BY SPECIES CODE.....	233
SORTED BY COMMON NAME.....	247
SORTED BY AFS COMMON NAME .....	261
<b>OTHER CODES .....</b>	<b>275</b>
PR1 NON-FISHING CODES .....	275
CALIFORNIA ISLAND CODES / SALTWATER CUTOFFS.....	275
OSP PR1 PORT CODES .....	276
CRFS PRIORITY SPECIES .....	277
CDFG LANDING SIZE RECORDS .....	278
COUNTY CODES.....	279
STATE POSTAL CODES .....	280

## CRFS Sampler Manual

ALPHA FOREIGN COUNTRY CODES.....	281
ANGLER SLANG NAMES .....	288
<b>GLOSSARY .....</b>	<b>311</b>
<b>INDEX .....</b>	<b>321</b>

## INTRODUCTION TO CRFS

This manual provides an explanation of the principles of the California Recreational Fisheries Survey (CRFS) as well as detailed instructions regarding sampling procedures and the coding of all forms.

CRFS was implemented through the Recreational Fisheries Information Network (RecFIN) program at the Pacific States Marine Fisheries Commission (PSMFC) using federal funds from the National Marine Fisheries Service (NMFS) and state funds from the California Department of Fish and Game (CDFG). RecFIN integrates state and federally funded sampling programs for marine recreational fisheries with a goal of providing for a single RecFIN database where this information can be accessed by fisheries managers and interested parties.

Get the manual on the internet and search it in Adobe Acrobat.  
[http://www.recfin.org/lib/2007/CRFS\\_Sampler\\_Manual\\_2007.pdf](http://www.recfin.org/lib/2007/CRFS_Sampler_Manual_2007.pdf)  
 Please direct corrections and comments to [wade@psmfc.org](mailto:wade@psmfc.org)

Many techniques are used to collect data for the diverse types of recreational fisheries in California. Though it is difficult to anticipate every problem, a thorough reading of this manual coupled with training will enable a Sampler to handle most interviewing situations. Any questions or problems not covered by this manual should be directed to your CRFS Supervisor.

This manual is structured so that general information applicable to all the survey methods appears before information specific to a type of fishing which likewise appears before instructions used to code the data on a particular form.

## CRFS Overview

The primary goal of the CRFS program is to produce, in a timely manner, marine recreational fishery-based data needed to manage and sustain California's marine recreational fishery resource. The focus of the program is to produce catch estimates with reasonable confidence for those groundfish stocks declared over-fished by NMFS and for those stocks with a directed harvest.

In response to concerns over the use of the national Marine Recreational Fisheries Statistics Survey (MRFSS) program for making in-season management decisions, the CDFG and PSMFC developed a new method for estimating total saltwater recreational catch and effort in California. The MRFS was developed by National Oceanic and Atmospheric Administration (NOAA) Fisheries (a.k.a. NMFS) and was used from mid 1979 through 2003 to collect data and estimate average annual catch and effort (angler trips) for California.

The CDFG and PSMFC began conducting the CRFS program in January 2004. This single, coordinated program samples recreational anglers who fish from all fishing modes. The CRFS program incorporates many improvements over the MRFS program. These improvements include: increased sampling, refined estimates of private skiff effort, grouping of trips by target species, dividing the state into smaller geographic regions, summarizing statistics more frequently, usage of an angler license telephone survey and frequent counts of anglers at fishing sites for effort estimates. The CRFS program provides more detailed and timely information on which to base management decisions.

As a result of the increased levels of sampling, recreational fishermen are more likely to encounter CDFG/PSMFC representatives conducting the CRFS program. Avid (frequent) anglers may be approached several times per year. Angler cooperation is critical to the success of the survey. Samplers will encourage anglers to take the time to participate and thank them when they do. Every fishing trip may have different target species, locations, gear, etc. Therefore it is necessary to have anglers provide data on each trip even if they have participated in the survey before. Anglers may also be telephoned on the angler license survey to be asked about their trips in the past month. Samplers should also encourage angler cooperation with that survey.

## Fishery Background



NOAA Fisheries and the CDFG have requirements by law for conducting a survey of marine recreational anglers to gather information on (1) catch, participation, and effort in marine recreational fishing; and (2) selected demographic characteristics.

Economically important species of fish are harvested by recreational anglers in estuaries, inshore areas as well as in open waters. Many important species of fish are harvested jointly by recreational and commercial anglers. Catches by the marine recreational fishery are a significant portion of the total landings of many marine species. Management responsibilities imposed by the Magnuson-Stevens Fishery Conservation and Management Act of 1976 (MFCMA - Public Law 94-265) as amended in 1996, have made it necessary to collect data on the marine recreational fishery catch.

Catch and effort statistics are fundamental for assessing the influence of fishing on any stock of fish. The quantities taken, the fishing effort, and the seasonal and geographical distribution of the catch and effort are required for the development of rational management policies and plans. Accurate and up-to-date catch statistics, collected over the range of species with associated biological studies, provide conservation agencies with the information necessary to manage fishery resources. These data are essential for state conservation agencies, recreational fishing industries, NOAA Fisheries, the regional fishery management councils, the CDFG, and others responsible for or interested in the management and productivity of marine fisheries. The allocation of many fishery resources depends on the results of these surveys.

NOAA Fisheries is charged with administering a program of research and services relating to the ocean and inland waters of the United States (Title 16, Chapter 9, U.S. Code). Collecting statistics on marine recreational fisheries is authorized by:

- 1) Section 5 (a) (4) of the Fish and Wildlife Act of 1956, which provides for the collection and dissemination of statistics on commercial and sport fishing;
- 2) Migratory Game Fish Study Act of 1959 (Title 16, Chapter 9A, U.S. Code), which provides for continuing study of migratory marine fishes, including the effects of fishing on the species;
- 3) Sections 303 and 304(e) of the Magnuson-Stevens Fishery Conservation and Management Act of 1976 (MFCMA) as amended in 1996, Public Law 94-265, which require the collection of statistics for fishery conservation and management.

CDFG must collect sport fish catch information to meet the conservation and management policies for California's marine living resources. The authority to collect this information is specified in the:

- 1) California Fish and Game Code (FGC)
- 2) California Code of Regulations. Title 14. (Specific FGC and CCR references are provided in Attachment C).

## Recreational Survey History

Collection of catch statistics on marine recreational fisheries is more complex and expensive in comparison to commercial fisheries. Recreational anglers fishing from boats, piers, jetties, docks and the open beach are dispersed along the coast. Fishing habits and practices vary among fishing sites and fishing modes. A fishing mode is defined as the method of access to fisheries. The major modes are man-made structure fishing (MM), beach and bank fishing (BB), party and charter boat fishing (PC) and private and rental boat fishing (PR). Data collecting differs among the fishing modes.



### MRFSS

The MRFSS methodology which ran from 1979 to 2003 in California but continues on the Atlantic and Gulf Coasts, is a complemented (dependent on each other) surveys approach involving a combined household telephone and on-site surveys. A random-digit-dialing (RDD) household telephone survey is used to obtain participation and effort (number of fishing trips) data, and information on the proportion of fishing households in each county of the survey area. An on-site survey to intercept anglers (intercept or catch survey) is used to obtain information on catch (number and weight) by species and area of fishing. The intercept survey also supplies information on the number of anglers, the number of anglers with and without phones, the number of anglers by state and county of residence, the length of fishing trips, disposition of catch, and other data of interest to fishery managers. The CRFS survey is working to calibrate the new data with this past data, so some data items are retained from the MRFSS while calibration continues.

### Ocean Salmon Project

The OSP estimates recreational and commercial catch, effort and coded wire tag (CWT) estimates for California's ocean salmon fisheries. CWT estimates identify the contribution of specific runs of salmon to the ocean fishery, a key component of salmon management. The OSP private boat survey is the primary component of the CRFS primary private boat survey (PR1) discussed below. It samples 20-25% of days for daily boat effort and a sample of catch to make estimates. The CRFS PR1 survey is designed to maintain the continuity of the historical OSP private boat estimates which began in 1962.

### CRFS

The Marine Life Management Act requires that the State of California manage its marine resources on the basis of the best available scientific information (FGC §7050(b)(6)). The best available recreational fishery data for making management decisions prior to CRFS came from three sources: 1) the MRFSS 2) the OSP; 3) Commercial Passenger Fishing Vessel (CPFV is the legal name for party and charter boats) logbooks. Other important historical data sources include the Northern/Central California CPFV On

## Board Observation Program and the Northern California Launch Ramp Survey



A major concern identified by constituents and fishery managers was the use of the MRFSS data in making crucial management decisions for groundfish (bottom dwelling fish), especially those related to in-season closures. The CRFS program was developed to meet the needs and recommendations by the participating agencies. A closely knit, coordinated program was developed that includes both the comprehensiveness of the MRFSS program and the high frequency on-site sampling (for the private vessel mode) of the OSP. CRFS specifically includes the following program elements:

- Integration of California's current marine recreational finfish sampling programs into one program
- Reporting of catch and effort at a fine geographical resolution
- Estimation of private/rental (PR) boat effort using on-site approaches
- Estimation of beach/bank (BB), private access and night angler effort using an Angler License Survey (ALS) with the frame built from one out of every 20 recreational fishing licenses
- A CPFV phone survey for effort
- Comparison of the CPFV phone survey with effort data collected directly from the landings and CPFV logbooks
- Increased catch sampling for PR and CPFV modes
- Estimation of effort and catch on man-made structures using roving angler count surveys, and catch surveys;
- Reporting of effort and catch estimates for all modes at monthly intervals
- Sufficient sampling of PR boats to meet ocean salmon management data requirements, including the collection of Coded Wire Tags (CWT)

## General CRFS Survey Design

The CRFS consists of a number of independent surveys: two telephone surveys; one of charter boats and another for license holders, and multiple intercept surveys of angler and boat trips. Data from the telephone surveys and the intercept surveys are combined to provide an estimate of the total catch of marine recreational anglers. Total catch is reported by species and area both by quantity and weight. Data are summarized monthly for six geographic districts.

## Geographic and Time Divisions

The CRFS estimates are structured around months and two-month periods called waves, e.g. January and February is Wave 1, March and April is Wave 2, etc. Waves are used to further structure the data because of the

## Introduction to CRFS

historical data from the MRFSS. California is subdivided into two geographic sub-regions; split north and south at the San Luis Obispo/Santa Barbara county border. California is further subdivided into six districts; South, Channel, Central, San Francisco, Fort Bragg and Eureka. The Channel and South Districts make up the Southern California Sub-region. The remaining Districts make up the Northern California Sub-region (see map below).

## Map of CRFS Districts



## CRFS Catch and Effort Structure

The CRFS uses multiple methods to collect sport fishery data and estimate total catch. However, the catch estimates can most easily be understood by this simple model: total angler trips X mean catch per trip = total catch. Mean catch per trip is also known as 'catch per unit of effort' (CPUE). Since these are separate quantities the surveys can be described as having separate collections for effort and catch.

The two major means of data collection are by on-site and off-site methods. Field surveys use samplers to collect data on-site while telephone surveys collect data off-site. On-site data is more reliable because it is not as subject to angler memory recall. On-site methods are used to collect all of the catch data while off site methods are used to collect effort data.

The CRFS program in the field is designed to collect data at publicly accessible sites during daylight hours. Therefore, separate methods are used to estimate total catch for the night and private access fisheries. Telephone surveys are used to estimate all effort, including trips at night and at private access sites. However, on-site methods are also used to collect the effort data for the boat fisheries.

The CRFS program is focused on fishing from boats because the majority of managed fish species are caught in boat modes. The private and rental boat (PR) mode fishery is the largest in terms of total catch in the state. The PR fishery is also seasonal and geographically diffuse. Some PR sites are very important seasonally. The PR sampling program is composed of two separate surveys, one to sample intensively and one to sample at a lower level. The intensive primary PR survey (PR1) is an all day census (complete accounting) of an important fishery at one site. The low level secondary PR survey (PR2) is a sample of a cluster of sites on a day (Sampler roving among sites).

#### Determination of catch and effort by major mode in the CRFS

MAJOR MODES	EFFORT			CATCH		
	DAY	NIGHT	PRIVATE ACCESS	DAY	NIGHT	PRIVATE ACCESS
MM	clus	ald	ald	clus	ald/int	ald/int
BB	ald	ald	ald	int	ald/int	ald/int
PC	pcps	pcps	pcps	int	pcps/int	pcps/int
PR1	cen	ald	ald	cen	ald/cen+clus	ald/cen+clus
PR2	clus	ald	ald	clus	ald/cen+clus	ald/cen+clus

(clus)-Roving site cluster sampling

(ald) – Angler license phone survey

(pcps) – Party charter phone survey

(int) – Random angler intercept survey

(cen) – Site-day census

(ald/int) – Proportion\* of trip types between two surveys

(pcps/int) – Proportion\* of trip types between two surveys

(ald/cen+clus) – Proportion\* of trip types between three surveys

\*CPUE for night and private access based on target species reported by anglers over the phone.

The detailed catch estimation methodology is available from your CRFS Supervisor or from the CRFS web site at [www.recfin.org/crfs.htm](http://www.recfin.org/crfs.htm).



#### CRFS Telephone Surveys

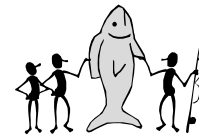
Two telephone surveys are used in the CRFS. The MRFSS telephone survey is also being conducted for comparison purposes.

#### Angler License Survey

The Angler License Survey (ALS) is designed to identify the number of anglers that go saltwater sport fishing and how many trips they took in each mode of fishing (pier, jetty, beach, private boat, charter boat, etc.) over a specified period. Data obtained from the ALS are used to estimate the total number of marine recreational fishing trips taken by license holders. The survey operates on a monthly basis.

#### Party Charter Phone Survey

Each week the PCPS survey write and telephone 10% to 50% of all party/charter boats (CPFV) in each CRFS District to determine the number of trips they took in the previous week and the number of anglers carried on each trip. This sample will be used to estimate the total angler trips of all vessels. The vessel file includes all participating party and charter boat vessels. Samplers help validate vessel trips in the field by performing vessel checks. The survey operates on a monthly basis.



#### CRFS Intercept Surveys

CRFS has five major angler surveys mainly based on mode of fishing. The intercept surveys are designed to intercept anglers at the fishing site at the completion of their fishing trips. The angler effort and average catch per angler by species and catch type for each particular mode and area of fishing is determined. This information is then multiplied by the total estimated number of trips by fishing mode, area and wave from the telephone or intercept effort surveys to compute the catch estimates by catch type, species, mode, area and wave.

#### Ocean Salmon Project (OSP) CPFV Survey

CDFG's Ocean Salmon Project (OSP) observes 20% (or more) of the CPFV salmon catch and effort dockside at ports north of Point Conception. Data collected includes number of anglers, salmon landed, salmon released, salmon ad-clipped (with tagged head recovery), and salmon lost to marine mammals by species. CRFS CPFV observers cooperate with OSP samplers at the docks for data collection.

#### OSP Coordination

During salmon season, a primary goal for the CRFS surveys includes identifying and counting salmon and examination for an adipose fin-clip for length measurement and head removal to recover the CWT. Samplers in salmon fishery areas will receive specialized training from the OSP annually prior to salmon season.

The OSP processes the salmon sample data and salmon heads for tag recovery. OSP produces biweekly catch and effort estimates and coded wire tag (CWT) contribution rates for salmon fishery management. The OSP

focuses primarily on the major salmon ports and works with CRFS to implement effective tag recovery and accurate salmon counts.



### **CPFV Logbooks**

CPFV operators are required to submit records (a logbook page) for each fishing trip. For each logbook entry, the vessel operator provides information on effort (number of anglers and number of hours fished) and take (type and number of fish caught). Logbooks are submitted monthly;

however the data have not been timely or complete, and in some cases, inaccurate.

### **Man Made (MM) Structure Angler Survey**

A modified angler survey is used for roving access point sampling of man made structures. The survey samples angler effort and catch at public structures such as piers, docks and jetties during daylight hours. Man made sites are grouped into clusters. Sites are clustered by, for example, geographical proximity, similar catch and effort, etc. All sites within the cluster are sampled on the sample day. The unit of effort is the angler. Anglers are interviewed during or at the conclusion of their trips. Each cluster is sampled three times a month.

The primary goal is to estimate effort in angler days for a cluster of MM sites for a day. This is done by counting anglers at the sites, intercepting anglers and recording their fishing time. The random sample will cover 10% (or less) of the days in the month for each cluster. Effort in angler hours is expanded to total daylight fishing hours of the sample day. The effort estimate in angler trips is the product of angler hours per day and angler trips per hour. Angler trips per hour is the inverse of hours per angler trip. The daily estimates are further expanded to account for weekend (and holidays) and weekday days not sampled (the remaining 80%).

The secondary goal is to estimate catch. Catch is determined by counting numbers of fish species observed (landings) and determining catch not observed (releases, other un-landed fish, etc). Catch estimates are calculated for the cluster and month in the same way and along with the effort estimates. Estimated mean catch per angler is calculated from total effort and total catch. Other data relevant to the angler effort and catch, such as location, trip type and fish measurements are recorded on the standard angler survey form used in the other angler surveys.

This survey is similar to the PR2 survey. It has nearly identical site selection and site sampling methods. Data collection will be combined with PR2 at some sites so differences will occur with the effort counts (angler sample) and form instructions

## *Introduction to CRFS*

### **Beach and Bank (BB) Angler Survey**

The primary goal of the BB survey is to collect catch data. Effort data is collected using the angler license survey. The field portion of the survey is a roving access point survey at publicly accessible beaches and banks during daylight hours. Samplers rove among a cluster of sites and intercept anglers at site access points. Sites are typically clustered by geographical proximity to one another. All sites are sampled on the assignment day. Anglers are interviewed during or at the conclusion of their trips. Each cluster is sampled at least once a month.

### **Primary Party and Charter Boat (CPFV) Angler Survey**

The primary Party/Charter boat survey samples CPFVs using both an on-board observer survey or dockside interviews for catch and a vessel telephone survey for effort. The observer survey is used to collect angler and catch data. Small boats (six-packs) that launch from public launch ramps or private moorings, vessels that fish on overnight trips, and vessels returning at night may be sampled dockside.

Sample selection for the CPFV catch survey sites is based on historical distributions with possible adjustments for anticipated change. Selection of vessel trips within a CPFV port will be proportional to effort, trip types, and areas fished to represent the possible fisheries available at that port.

For on-board sampling the observers collect angler data from as many anglers as possible on the way out to the fishing grounds. During fishing, observers collect multiple data on fishing activity, such as fishing location, fishing depth, and species counts, for a group of observed anglers after conclusion of fishing, the anglers who were interviewed on the way out are surveyed for catch data, including retained catch lengths and retrieval of ad-clipped salmon heads.

### **Primary Private Boat (PR1) Survey**

A specialized survey has been developed for sampling of primary launch ramps. Primary launch ramps are those where the majority of the managed species, in any particular month, are landed. The survey samples boats using these sites for effort and catch. See the CRFS methods document for details on this and the other PR surveys.

The primary goal is to estimate total fishing boat effort for the day. This is done by counting trailers and returning boats. For each boat, the sampler determines the primary activity. If the boat is fishing, then the target fish species and anglers per boat is determined. The random sample covers 20% or more of the days each month for each ramp. Effort is expanded to account for weekend (and holidays) and weekday days not sampled (the remaining 80%). The effort estimate is in boat (and angler) trips by target fishery group.

The secondary goal is to estimate catch per boat. In Northern California, during salmon season, this is a primary goal in order to count marked salmon and collect tags. Catch per boat is determined by counting numbers of fish species landed and asking about catch not landed (returns and other un-landed fish). Catch per boat is averaged for the ramp and month. Estimated total catch is the product of estimated effort and mean catch per boat.

### **Secondary Private Boat (PR2) Survey**

A modified angler survey has been developed for roving sampling of secondary launch ramps (clusters). Secondary launch ramps are those that land the minority catch of species of concern in any particular month. The survey samples trailers and boats returning to these ramps for effort and catch. The unit of effort is the boat.

The primary goal is to estimate effort in angler days for a cluster of ramps for a day. This is done by counting trailers at the secondary ramp sites, intercepting boats, and recording their activity, whether fishing or non-fishing. Trailer counts and angler hours are recorded to measure effort. For each fishing boat, the number of anglers and total hours on the water is recorded. The random sample covers 10% (or less) of the days in the month for each cluster. Effort in hours is expanded to total daylight fishing hours. This effort estimate in angler trips is the product of trailer hours per day and angler trips per trailer hour. Angler trips per trailer hour is the inverse of trailer hours per angler which is taken from the number of anglers per boat and boat trip duration. The day estimates will be further expanded to account for weekend (and holidays) and weekday days not sampled (the remaining 80%).

The secondary goal is to estimate catch. Catch is determined by counting numbers of fish species observed (landings) and asking about catch not observed (releases and other un-landed fish). Catch estimates are calculated for the cluster and month in the same way along with the effort estimates. Estimated mean catch per angler is calculated from total effort and total catch. Other data relevant to the angler effort and catch, such as fishing location, trip type and fish measurements will be recorded on the standard angler survey form.

## ROLES AND RESPONSIBILITIES



### **The Supervisor**

Supervisors oversee the recruiting, hiring, training and quality control of field Samplers, sample data as well as maintenance of the Site Register in their sub-regions. Samplers should call their Supervisor if they have procedural questions, questions about a fish or a site, etc.

Supervisors will conduct “quality control” visits with each Sampler. During these visits, the Supervisor will observe work done by the Sampler and feedback on interviewing at that time or later.

The Sampler will send their data forms to the Supervisor each Monday for editing, evaluation, and forwarding to OSP or PSMFC for data entry. Samplers are required to submit legible forms. High quality readable data is our primary goal. The Supervisor may also conduct validation telephone calls to intercepted anglers to verify sampling procedures and/or accuracy of data recorded on the form.

### **Supervisor Communication**

Your supervisor is your primary resource for training and problem solving. If you are not sure of a protocol in the field, make a mistake that you are concerned about, can't find something in the office that you need, etc, contact your supervisor via work or cell phone. When in doubt, don't guess, call!

If you need to come into the office to discuss forms or sampling, etc., try to notify your supervisor or their assistant ahead of time. This will help them prepare for you visit.

The Supervisor produces monthly sampling assignments, a district specific procedures addendum to this manual, and maintains their district's site list, among other duties in support of CRFS sampling. The Supervisor is also the person whom anglers may contact concerning CRFS procedures and sampling issues (see public outreach section below).



### **The Sampler**

The intercept Sampler plays a vital role in this project since the key to accurate data is high-quality interviewing. Though Samplers will be hired partly for their skills in fish taxonomy, these are not the only skills required of a successful Sampler. A good Sampler is one who can approach strangers with little reluctance, who can diplomatically handle touchy situations, who can follow procedures and complete forms with almost compulsive exactitude, and who can identify

## *Roles and Responsibilities*

fish accurately at the species level. The intercept interview itself involves both a face-to-face interview and a catch census, and a unique set of skills is required for each. The Sampler is also called a Sampler since the general conduct of the survey is to sample anglers and catch.

The specific tasks of an intercept Sampler are many. He/she will be expected to:

- be knowledgeable about the CRFS goals and data uses
- complete sampling assignments
- be able to identify all common fish
- use a key to identify uncommon fish
- have all necessary equipment and forms available
- keep equipment in proper working order (e.g., scales oiled and calibrated)
- conduct interviews in a professional manner
- wear appropriate attire that is neat and clean
- accurately complete and submit all forms in a timely fashion
- work on passenger fishing boats at sea
- follow the procedures in this manual

### **Professional Conduct**

Address members of the public with courtesy and respect. Be polite and professional, for example, always ask permission to board a vessel or handle fish. Be aware of your body and verbal language usage. Refrain from words that could be construed as cussing. You are the public face for CDFG and PSMFC. Your behavior serves to substantiate the legitimacy of the survey and increase angler cooperation.

Always introduce yourself to the crew, and ask permission to board party and charter boats. Do not engage in "deckhand" duties (helping anglers land fish, tying on hooks, etc) while sampling onboard. Our insurance does not cover activities outside of your job description as a CRFS sampler. Do not participate in fishing or accept free boat trips.

**Smoking** is allowed in the field. However, you may not smoke on-site. If do smoke, do it offsite, in your car, away from the dock, anglers, etc. Never interview anglers while smoking or throw your cigarette butts on the ground or in the water.

**Alcohol** is not to be consumed while working, nor are you to work while intoxicated. Never drink and drive.

Please refer to the current PSMFC Personnel Policies Manual for detailed information on employee conduct.

## Attire

Samplers are expected to act and look professional. Samplers on assignment will wear a button down uniform shirt buttoned and tucked in (polo shirt for onboard sampling is acceptable). Pants can be jeans or long shorts (for warm weather). No sweats or pants with holes/tears. Do not wear attire with other logos (advertising logos, etc.). The public may be confused about who you are affiliated with if you wear a different logo shirt on assignment. Wear your uniform hat and jacket for protection from the elements as needed.

**CRFS ID Badge** is to be worn the entire time you are on assignment. Do not use your sampler ID card for any other purpose. Although many of you will be hired as PSMFC employees, Samplers will be viewed as representatives of the state of California. Samplers should say they are conducting a survey for the state sponsored by NMFS and CCDFG and are employed by the Pacific States Marine Fisheries Commission (PSMFC) or CDFG depending on your employer.

**Shoes** must be closed-toe. Do not wear 'flip-flops' or sandals. This is not only a safety issue, but also a matter of professionalism. Shoes should have rubber soles so that you have a secure footing regardless of where you should find yourself (on jetties, climbing into boats, etc.)

**Hats** will help prevent the sun from taking its toll and help identify you as a Sampler. Protect yourself against sunburn and heat exposure. It also helps glare from the sun which can tire you out and or lead to a headache. It helps to keep your hair out of your face and therefore minimize the potential for accidents that can result from your inability to see clearly.

**Sun Screen** is highly recommended to protect you from sun burn as well as reduce the risk of some skin cancers.

**Sunglasses** will help protect your eyes from UV radiation. Out of courtesy, do not wear sunglasses while speaking to anglers.

**Gloves** will protect your hands while handling slippery wet fish.



## Working with Others

While sampling, you will use your interpersonal communication skills to gain access to paid access sites, board and sample boats, etc. You will work with other CRFS samplers, other agency staff, and law enforcement, as well with the public, including anglers and the curious.

## Managed Sites

Upon arrival at privately-owned operations and closely supervised public operations, you should check in with managers or persons in charge. For

## Roles and Responsibilities

both permission and to be courteous, the Sampler should introduce him/herself and explain just what it is he/she will be doing.

## Other Samplers at the Site:

When you arrive at your assignment site and you observe another project's sampler working, introduce yourself to the other sampler, and try to work together. This gives anglers the impression only one survey is taking place. If the other sampler will not work cooperatively, contact your supervisor and move to an alternate site if possible. If a CRFS Sampler arrives or is at the site, you will work cooperatively.

## Other agency field programs

Other projects may request your help in collecting field information. If you are approached in the field to do this, refer the person to your Supervisor.

## CDFG Wildlife Protection Officers (Wardens)

Often wardens will be present at your site. Sometimes they will be undercover agents and you even may interview one without your knowledge. If a warden asks you if you have seen any illegal activity, you should tell them what you know but ask them to be discreet with the information. We do not want to jeopardize our presence at any site or party boat operation. If a warden approaches while interviewing, let them proceed with their investigation. Stand back during the investigation.

Complete the interview with an investigated angler if possible, and include confiscated catch, if any. Code any examined and/or unexamined confiscated catch as type 2 records with the disposition "some other purpose. Report the encounter in your Assignment Summary and on the affected form.



## Fishery Violations

Your primary responsibility as a CRFS Sampler is to collect data from the recreational fishery. You are not a warden, nor are you to allow or encourage the public to think you are.

## Discussion of Regulations

While in the field you may have people ask you questions about fishing regulations. You are responsible for knowing the basics, such as which species have size and possession limits, and the requirements for having a fishing license. If you do not know the answer to a regulation question, never guess. You should offer the person a copy of the current sport fishing regulation booklet, and show him or her where to find the answer, but never interpret the law for the angler. Refer him or her to a CCDFG office so they may speak directly to a warden.

### *Illegal Activity*

Do not give the impression to anyone that you are a warden. Do not get involved with fishing regulation enforcement in the field. However, you may educate the anglers as to regulations. If you observe illegal fishing activities, pass the information along to your supervisor.

When you encounter an angler with a violation, e.g., a short fish over-limit, etc, you should explain the violation and educate the angler. Obvious violations of bag limit or size regulations or other illegal activity should be reported to your Supervisor after your assignment and so they can notify law enforcement. In this way the game wardens can pay a visit to the site(s) where you saw violations occurring and issue citations when appropriate. This removes you from that process, as our function is biological sampling.

With regard to illegal activity on party and charter boats, care should be taken not to disturb a good working relationship with captains and crew. Report any illegal activity in the comments area of your Assignment Summary Form. Notify your supervisor.

### *Sampling Illegal Activity*

The purpose of the sampling work in the CRFS is to collect an independent and unbiased sample of the fishing activity. Any behavior which would systematically exclude illegal take from the sample would create a bias in the sample.

There may be occasions where an angler has kept a protected or prohibited species, such as a giant sea bass or canary rockfish. You may be directed by your supervisor to collect such species. Notify your supervisor as instructed (same day phone call, email, etc). You are to get a length, weight, and take a photo if possible. Try to collect the species, if directed to do so by your supervisor. Under no circumstances should you engage in any sort of discussion or behavior that the angler may interpret as threatening. If you are unsure of how to proceed in any situation, contact your Supervisor immediately.

### *White Sea Bass*

Special circumstances apply when you encounter an angler with a short white sea bass. First explain to the angler about minimum size restrictions. If your Supervisor may have assigned to you a “wand” to check for internal coded wire tags, you should wand the fish. If the fish tests positively, you should record length, weight, date, and location caught. If the fish is alive, explain to the angler that the fish needs to be released. If the fish is dead, you should explain to the angler that if a warden were to come by, a very expensive ticket would result but could be avoided if he or she donated the fish for research. Ensure that the angler does not feel the fish is being confiscated, but also do your best at convincing him or her that it is in everyone’s best interest to let you have the fish. If you are successful in collecting the fish, notify your Supervisor as soon as possible so that

## *Roles and Responsibilities*

arrangements can be made to turn the fish over to the appropriate biologists.



### *Educating the Angler*

It is not the duty of the Sampler to enforce the laws. You should not be confrontational to anglers condoning or engaged in illegal take. An educational approach should be used with regard to informing anglers about the regulations if they appear ignorant of the violation.

The Sampler should inform the angler of size or bag limit violations if it appears the angler is unaware of the violation. Some statement such as, “Did you know you have two undersized barracuda? The minimum size is 28 inches. I’m doing biological sampling, but if a warden were to come by, you might get a ticket.”

## *Public Outreach*

Samplers are seen by the public as the most visible and convenient contact with fisheries regulators. The Sampler is a very visible person at any fishing site, especially while in uniform and fully equipped. While you are observing the fisheries, you are being observed and judged by the public. Your actions and conversations reflect on PSMFC, CDFG and government fisheries in general. Do not do anything that would be judged as poor behavior or a waste of time. Remember that you are a public employee and the public is the source of your income.



### *Speaking with the Public*

If you are being asked questions in the field that you don’t know how to answer, don’t guess, and suggest to the angler they contact CDFG or your supervisor. Let your supervisor know what questions you are getting, so they can share answers to those questions.

If you are approached by a reporter in the field, you may provide facts regarding your job duties and CDFG, PSMFC and supervisor contact information. Inform your supervisor after you have been approached by a reporter in the field. All other information (survey design, what you see, cooperation, etc) needs to be answered by either the supervisor or someone else in CDFG.

All information on the data forms (including individual fishing locations) is private and is not to be shared with anyone outside of CRFS. Data is collected under the guidelines of the Privacy Act, see Angler Form section.

### *Handling Complaints*

Sometimes members of the public have stories of how they were mistreated by warden, or other complaints regarding CDFG policies, regulations, etc. Pass this information on to your supervisor. It is important to not take

sides, we are biologists not policy makers. You may suggest to the individual that they contact CDFG with their concerns and/or write a letter to the Fish and Game Commission.

The Sampler should be aware of the current regulations; however the Sampler is not required to know the complex reasons why the regulations are such as they are. Suffice it to say that the fisheries managers are doing all they can to provide fishing opportunity while allowing fish populations to be healthy for future generations of anglers. There is tremendous pressure on managers to allow angling and to justify every restriction.

The Sampler may facilitate the outreach process by informing the angler that there is a process, explaining the limited role of the Sampler, providing contact information, explaining a regulation or offering printed materials. Often the Sampler will not have time to get into a conversation and then should politely explain that they are very busy with data collection right now.

Q. How do I reassure impatient or disgruntled anglers?

A. The Sampler can say; "Every angler who takes the time to participate gets us all closer to the truth." or "I'm sampling here now to collect the most accurate information I can." or "Please be good or I'll toss the holy hand grenade of Antioch."

### **Printed Materials**

There are a number of printed materials available to the Sampler to hand out to anglers. Often a handout will be an incentive to participate. Be sure to have copies of the current regulations and handouts. You may be asked to supply businesses with printed information.

**Fisheries Management in a Nutshell** – Explains the shared resource and the specific kinds of data analysis that are used to manage the fishery. 2 sheets, double sided, folded in half. Highlights:

- Fish are a common property resource
- Fishery managers are directed by elected officials
- The Magnuson Act requires fishery management plans
- Legislation directs and organizes managers and officials
- Management conservation prevents over fishing
- Conservation is usually required for optimum yield
- Conservation is controlled by regulations
- Optimum yield is determined by stock assessment
- Stock assessment is based on catch, effort and biology
- Catch and effort are estimated from the fishery
- Fishery biology is studied within the fishery
- Growth, age and death of fish populations are studied
- Allowable harvest may be allocated among fishing groups
- Fishing groups give advice to managers and officials
- Steps anglers can take to begin getting involved

### *Roles and Responsibilities*

**Who is Responsible for Managing our Marine Fish?** – Explains who is involved in the management process and lists contacts. 1 sheet, double sided, folded in half. Highlights:

- Who are the agencies involved?
- Who will listen to me?
- How do I contact these fish management agencies?

**Overview of PSMFC** – Explains the goals of the commission as a group of programs for data collection and reporting among states. 1 legal size sheet, double sided, folded in quarters. Highlights:

- Our goal
- Commissioners, advisors and staff
- Programs addressing specific needs
- External program support
- Our funding and services
- Legislation and information systems
- Facilitation and coordination

**CRFS Brochures** – Effort and catch per year for top five fish in each mode of fishing for each District. 1 sheet per district, double sided, folded in thirds.

**CDFG Ocean Fishing Regulations** – Printed booklet, 24 sheets, half letter size, double sided.

**Guide to Marine Fish Identification, Oregon to Pt Conception** – Black and white pictures of fish. 1 sheet, letter size, double sided, folded in fourths.

**Guide to Marine Fish Identification, Pt Conception to Mexico**– Black and white pictures of fish. 1 sheet, letter size, double sided, folded in fourths.

**Selected Nearshore Fishes of California** – COLOR pictures of fish. 1 sheet, letter size, double sided, folded in thirds.

**Shelf Rockfishes of California** – COLOR pictures of fish. 1 sheet, letter size, double sided, folded in fourths.

**Slope Rockfishes of California** – COLOR pictures of fish. 1 sheet, letter size, one sided, folded in thirds.

**CDFG Card** – Business card with basic contact information and web site address.

**RecFIN Card** – Business card with basic contact information and web site address.



### **Electronic Materials**

All of the printed materials are available in electronic form on the CDFG and RecFIN web sites on the internet:

Fisheries Management in a Nutshell  
<http://www.recfin.org/lib/2003/nutshell.pdf>

Who is responsible for Managing our Marine Fish?  
[http://www.recfin.org/lib/2003/who\\_is\\_responsible.pdf](http://www.recfin.org/lib/2003/who_is_responsible.pdf)

Overview of PSMFC  
[http://www.recfin.org/lib/2003/psmfc\\_overview.pdf](http://www.recfin.org/lib/2003/psmfc_overview.pdf)

CRFS Program  
<http://www.recfin.org/crfs.htm>  
<http://www.dfg.ca.gov/mrd/crfs.html>

CDFG Ocean Fishing Regulations  
<http://www.dfg.ca.gov/mrd>

Guide to Marine Fish Identification, Oregon to Pt Conception  
[http://www.dfg.ca.gov/mrd/fishid\\_04\\_nocal.pdf](http://www.dfg.ca.gov/mrd/fishid_04_nocal.pdf)

Guide to Marine Fish Identification, Pt Conception to Mexico  
[http://www.dfg.ca.gov/mrd/fishid\\_04\\_socal.pdf](http://www.dfg.ca.gov/mrd/fishid_04_socal.pdf)

Selected Nearshore Fishes of California  
<http://www.dfg.ca.gov/mrd/fishcard.pdf>

Shelf Rockfishes of California  
<http://www.dfg.ca.gov/mrd/shelfrockfish.pdf>

Slope Rockfishes of California  
<http://www.dfg.ca.gov/mrd/sloperockfish.pdf>

A number of other interesting resources are available in the web sites, including access to the data, estimates, contact information, links to other agencies, and the ability to provide public feedback to the Councils.

## ***Your Safety***

Your safety is more important than the data collection. Do not endanger yourself; stay aware, use common sense and be prepared.

### **Driving to the Site**

During winter months it is often necessary to travel in the dark, during bad weather or low visibility. Aside from the obvious potential danger from driving in congested traffic or poor conditions, samplers should also be alert to animals or people crossing the roadway, as well as other objects in the roadway. Watch out for icy patches, rockslides and spills on the pavement.

## ***Roles and Responsibilities***

Decreased reaction time due to limited visibility should be taken into account and samplers should be prepared in case of a sudden need to stop.

### **Safety at the Fishing Site**

The first activity you should undertake at any site is to size up the situation and make sure that it appears safe. If activity at the site is abnormal or a person or person(s) seem unusual, use wisdom and caution about sampling and/or leaving the site.

Rough weather or conditions that make jetty rocks hazardous need to be considered. No interview is worth an injury or attack. **Your safety is our primary concern and is much more important than interviewing any angler.**

If the situation is hostile or unsafe, leave. Dial 911 in emergencies. Your safety is more important.

1. Know the locations of pay phones or carry a cell phone if you have one. Updated information about this can be found in your site descriptions. Have a list of emergency phone numbers available to you. Be aware that if a pay phone does not show its phone number on it, no one can call you back.
2. If you are working at a launch ramp, develop a roving eye for moving vehicles. A Sampler kneeling on the pavement while measuring fish can easily be overlooked by someone towing a trailer.
3. Pay attention to the people in the vicinity, and watch for suspicious activity. If the situation becomes dangerous, be prepared to leave the site.
4. Approach restrooms with caution. Public restrooms are notorious for suspicious activity. Use caution when walking a path through bushes or near other hiding places. Wait in the parking lot for anglers, if possible. Keep your car door locked.
5. Make acquaintances with the local Harbor Patrol or Police Departments. Local enforcement officers have certain areas they patrol, so you will tend to see the same people at the same sites.
6. If you are working on a party or charter boat, beware of inexperienced anglers that don't pay attention when overhead casting. The same is true of jetties and piers. Sinkers, hooks and jigs can all be very dangerous when flying through the air.
7. Use care when climbing into someone's boat (after being invited, or after asking permission only), since the boat or trailer may not be stable, or the footholds and/or handholds may be slippery.
8. Think twice and don gloves before reaching into a bucket or other container filled with unknown fish. There may be a toxic species or two.

9. Use caution when walking on rocks or cliffs at beach and bank sites. Uneven terrain can cause you to slip and fall, or twist and ankle if you're not careful. Also assess the wave activity before walking on a jetty. These areas frequently get hit by high surf at certain intervals, sometimes with little warning.



### **Criminal Activity**

Because you will be spending so much time in the field you will run into an extreme variety of situations. Occasionally these situations may involve criminal activity. Our protocol regarding confidentiality does not pertain to criminal acts. If you witness a crime you should call 911 immediately.

Be prepared to describe a person or make of vehicle. If possible, have the license plate. If you need to leave the site to safely make the call, do so.

If at any time you are unsure of how to handle a situation, contact your Supervisor. Notify your Supervisor as soon as possible about any situation that caused you to call 911. This is important since another Sampler may be assigned to work at the same site soon.



### **Uncooperative and Abusive Anglers**

Some anglers will not want to be intercepted for one reason or another. It is their right to refuse. Be polite, and try your best to get them to change their mind.

Some anglers may be hostile toward you. You should be aware of this potential when interviewing. If this should occur, stop the interview process and walk away. If you are personally threatened either verbally or with physical harm, LEAVE IMMEDIATELY. We have had very few problems with attacks, but they have occurred. In all cases to date they were not serious and in most cases were caused as a result of anger at fishing regulations.

If hostility or threats do occur, record all appropriate information, i.e. date, time, physical descriptions and what happened to report it accurately. If you are threatened with harm or are harmed in any way, CALL 911 first. Contact your Supervisor as soon as possible and report all the details. Though these situations are extremely rare, always ask yourself if the scene is safe before proceeding.

### **Report Accidents**

Document all accidents when they happen. This includes notifying your Supervisor so that an accident report can be filled out. Complications may occur from what appears to be a minor accident. Workmen's Compensation will cover costs of medical treatments for on the job injuries and they need to be reported when they happen. If you do not report necessary details at the time of the accident some may not be remembered.

If you seek medical treatment for a work-related injury, be sure to let your doctor know this. As soon as possible, contact your Supervisor for information regarding workmen's compensation and be sure to file a timely accident report.

### **Safety on CPFV Boats**

Samplers should be prepared for bad weather and rough surface conditions when sampling on board vessels. The weather can be vastly different out on the ocean than at the dock and it is better to shed clothing than to wish you had dressed warmer or had packed rain gear.

Crowded, slippery, rocking, sometimes frozen walkways leading onto the boats are a hazard. Always be aware of these situations before attempting to board the boat. Once aboard, familiarize yourself as to where life jackets and rafts are located.

Out on the ocean, ocean swells and wind generated seas can make footing difficult. Samplers should keep an eye on incoming swells as much as possible to avoid being surprised by unexpectedly large waves. Keeping within grasp of something to hold onto or sitting down while observing are strategies that make sampling safer. Be cautious of leaning against deck railings, especially at the deck gate since the railings may be weak or the gate may not be secure.

On rocking boats there is potential danger from swinging hooks and weights on fishing rods. Keep a safe distance from fishing action whenever possible and be alert to situations where these problems may occur.

Handling fish should be done in an area with enough space to work comfortably without having to worry about other people or objects unexpectedly entering that space. Keep in mind that the area where the fish are laid out becomes slippery. Kneepads may be worn while measuring the fish.

### **Lifting Fish**

Lifting individual large fish and heavy bags of fish needs to be approached with proper lifting procedures to avoid back strain. Safe lifting is a function of the weight lifted and the lifting technique used. Here are some guidelines for safe lifting that will help you avoid a back injury.

1. Plan your lift! Know how much the load weighs and where you are going to take it!
2. Tighten your stomach muscles while lifting.
3. Lift using your leg muscles, not your back muscles.
4. Do not twist. Move your feet.
5. Try to maintain the natural curve of your spine.
6. Try to store loads between knee and shoulder level, so lifting will be easier.

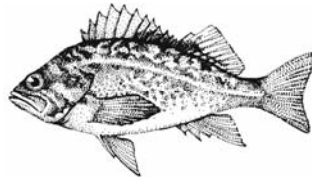
7. Try to balance the contents of any load evenly.
8. If possible, use handles and grips.
9. If a load is heavy or awkward, use a mechanical aid, ask for help, or break the load down into smaller and lighter loads.
10. Keep the load close to your body. This will significantly reduce the force on your back.
11. Maintain good balance by keeping your feet shoulder width apart.
12. Do not jerk the load up. Lift smoothly.
13. Remember that lowering is preferable to lifting, pulling is preferable to carrying, and pushing is preferable to pulling.
14. Stay in good physical condition.

## Handling Fish

You should be aware that a number of fish pose a hazard and that precaution should be taken when handling them.

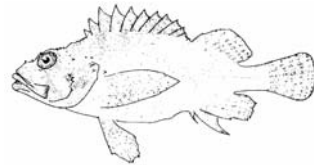
### Rockfish (Sebastes spp.)

Most, if not all, 67 species of rockfish have some toxin in their spines, so use care when handling them. If a spine breaks your skin and the pain is more than minor, heat or meat tenderizer will usually take care of the problem. While rockfish are not nearly as dangerous as California scorpionfish, you should watch for reactions, especially if there are subsequent injuries because people can develop a reaction to the rockfish toxin if they are injured a number of times.



### California Scorpionfish

This very pretty fish has a serious toxin in its dorsal, anal and pectoral fin spines. At a minimum, a poke from a spine is very painful, but it can also be life-threatening for some people. These fish should only be handled with the utmost care. Pliers are good to use rather than hands so that there is minimal chance of being stuck by one of the spines. On many party/charter boats, the deckhand will break off the spines with pliers while holding the fish over the side before bringing it aboard. Do not be deceived by very small specimens because their spines are just as dangerous.



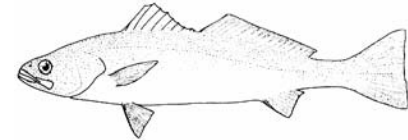
#### Remedies:

- 1) For a serious situation, get to the nearest emergency room because anaphylactic shock can occur from the toxin, especially if there is an allergic reaction to it.

- 2) For a minor situation, soak the injured body part in water that is as hot as can be tolerated (the hotter, the better) or apply meat tenderizer (not "Accent," which is only a flavoring). Tenderizers that contain papaya enzyme are good because the toxin is a protein, and papaya enzymes (and other tenderizers) break down protein.

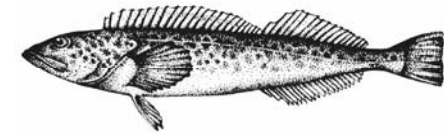
### White Seabass

This fish has many sharp teeth, so steer clear of the mouth when handling.



### Lingcod

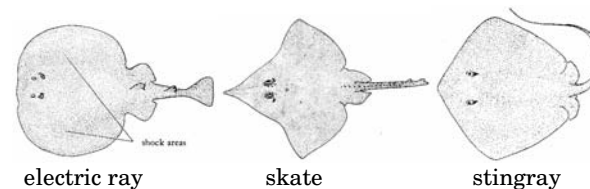
Lingcod have large, sharp teeth and sharp gill rakers. NEVER pick up this fish by inserting your hand under the gill cover. Instead, pick up the fish by inserting the thumb and forefinger of one hand into the eye sockets (this especially impresses little kids), and use the other hand to lift the fish by the tail.



### Ratfish

Ratfish are rarely seen by Samplers because they are caught in deep water and most people who catch them throw them back. If you should need to handle a specimen, use care to avoid the very large, venomous spine in front of the dorsal fin. The toxin is a protein, so heat or meat tenderizer can probably be used to relieve the pain.

### Skates and Rays



**Electric rays** can be dangerous. Do NOT touch the disk part of this fish! The name is self-explanatory. While you won't suffer permanent damage, the shock can be very strong and painful.

**Skates** have dangerous tail spines because they are very sharp.

**Stingrays** have a venomous stinger at the base of the tail. Again, heat or meat tenderizer can usually minimize the pain.



### Handling Wild Birds

During the course of this job, one will occasionally run across anglers who have gotten their fishing lines involved with wild birds. This is a most unfortunate event for anglers but can be dangerous or fatal to the bird, depending on the circumstances. As a biologist we are sometimes singled out on the boat, pier, beach, etc., to act as doctors and help "repair and mend" a wounded or hooked animal, and to hopefully release the animal with as little harm as possible. While birds are inherently fragile due to the wings and lightweight skeleton, they can be dangerous nonetheless and one's personal safety must never be at risk! Always keep your eyes at a safe distance! Gulls in particular target the eyes. Claws are dangerous on shearwaters and other birds, but proper holding technique will protect you from this.

On a CPFV it is best to let the deckhand free a bird. Try to subdue the injured bird as soon as possible. Professional handlers use hoods to calm large birds of prey, and this works on smaller birds too. It is critical to keep the bird from further harming itself, but especially from harming you! Without a hood, one can best subdue the bird by throwing a towel, blanket or sheet over the bird, or maybe even a jacket or box, if nothing is available. Now single out an eager assistant to help while you attempt to get a hold of the birds' upper legs. Ideally, the best way to hold the bird is with one hand (between the birds' legs). Place the middle and index finger between the legs, while the thumb secures one leg and the fourth and fifth finger hold the other leg. The bird can now flap its wings a bit; without escaping before it can be helped. If the legs themselves are injured, one must wrap and hold the wings in the folded position while an assistant works on the leg. If all this can be accomplished without uncovering the birds' head and eyes, the bird will remain much calmer. If working on a hooked wing, keep all other parts secure or covered while an assistant untangles the bird, cuts the hook, line, etc. Sometimes all you can do is leave the hook in and cut the line.

Often gulls will chase bait as the angler casts. They can quickly swallow the hook and bait and fly away (and steal your gear if the drag is too tight!). Gently reel it in, a little at a time, like a large fighting fish. Subdue the bird with towel or jacket and cut the line as short as possible. Release the bird. Potent digestive enzymes will dissolve the metal in time. There was once a healthy brown pelican that became trapped on the deck of a party-boat. It was interested in the baitfish being used, but had too little space for its normal take-off which requires a bit of a "runway". We subdued the bird as mentioned above, and gently released it upward into the air current. In the case of broken bones or wings, birds need the care of a wildlife or bird rescue center, where it can live after the broken bone has been properly set. There is usually one in each county. This may or may not be feasible. Some may not work with just any bird; for example the Santa Rosa Bird Rescue Center does not treat rock doves (pigeons) starlings or the "English" house sparrow, to name a few. These are non-natives, but even some native species like blackbirds or gulls may not be treated at some centers. Find a

### Roles and Responsibilities

phone book and call in advance. Chances are they can at least advise you further.

In colder months, albatrosses and fulmars will get bolder to secure food and can become hooked or entangled right at the boat as anglers pull up their lines. This can often be prevented by simply informing people to watch out, and that those seabirds are protected by both State and Federal laws. Feeding the birds is generally frowned upon; however a handful of popcorn thrown overboard can concentrate birds in one area, away from harm as the boat gradually drifts along.

First and foremost, personal safety is your priority. Always protect yourself. Never allow an injured bird near your eyes; whether you think it will bite or not. Remember to "hood" an agitated bird to calm it down; this will help both the bird and you. Ask for an assistant to help, as large birds are near impossible to handle alone. Proper handling is essential. It takes practice to feel comfortable, but soon you'll feel great to see the animal free once again. Good Luck, Dan Nelson.

### General On-site Problems

A number of problems may arise during the course of the data collection effort. Some of the more common ones and ways of handling them are described below. Others or specific problems will be handled by your Supervisor or may be found in your sampling subregion Addendum. If you have a serious problem while conducting an assignment let the supervisor know the same day. Email or phone message is fine. Examples of problems include: illness, broken equipment, no boats going out, emergencies, etc. If you have an emergency, call 911 and notify the supervisor when safe to do so.



### Rain/Bad Weather

In general, the rule to be followed is that, if people fish, interviewing should take place. Each Sampler will be assigned to a specific site and mode of fishing on a specific date. If, on the day scheduled for interviewing, the weather is obviously so bad that no one could be expected to fish, you should follow the instructions provided for such situations by your Supervisor which may include getting the date reassigned.

In some cases, lack of effort at a particular site entails moving to the next site in a cluster of sites. In other cases the assignment will complete early if there is no effort. In other cases you will have a second assignment that may be at a location and in a mode where effort is ongoing or be provided with another work activity. The next option is to do other duties assigned by your Supervisor such as edit forms, etc.

## Refused Entry to Site

In some cases you may be refused entry to a fishing site or access to a CPFV by an owner or boat captain. If, after explaining the project, admittance cannot be obtained, you should proceed to the next alternate site where sampling in your assigned mode can be undertaken, or move to a second assignment. Your Supervisor should be notified about your refused entry/access.

## Tournaments

A tournament is defined as a fishing contest for which participants have to register and compete for the largest fish, most number of species etc. Informal 'pools', such as those arranged on party boats, are not considered tournaments. Tournaments are included in this survey. If a site turns out to be the official station for a tournament, the Sampler will be able to indicate this on the coding forms.



## Parking

Parking can be difficult at some of the sites, especially during the busy summer months. Use your good judgment about parking in a non-recognized parking space. Your Supervisor has included notes regarding special situations regarding parking in your site descriptions. Your supervisor may provide you with a CDFG placard on your dashboard to identify your vehicle, which in special circumstances may prevent ticketing. Please attempt to park legally. While you may sometimes need to park in a space reserved for boat trailers, or in a red zone (as a last resort), NEVER park in a handicapped, fire hydrant or tow-away zone. Even your Supervisor can't get you out of that one. PSMFC does not pay parking tickets or towing. If you need to pay for parking, get a receipt and list on your expense claim.

In parking your car at a launch ramp, be sure you give the anglers enough room to circle with their vehicles and trailers.

## Pay Parking Lots

Many access points to beach areas have pay parking lots. When the parking lot has an attendant, samplers can almost always obtain free entrance, provided they are in uniform and have their CDFG placard with them on the dashboard. If the parking lot does not have an attendant, you may need to pay to gain entrance. Occasionally, law enforcement or city workers may be able to let you into the parking lot without paying. If you do have to pay to get in to the parking lot, you will most likely get a receipt, which needs to be submitted when you send in your travel claim. If you don't receive a receipt, make a note of this on your travel claim (e.g., "Receipt not available"). Remember it is always in the best interest of the program if you can find an alternative (free) place to park your car.

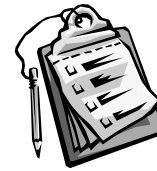
## Roles and Responsibilities

### Parking Meters

Do NOT put money into parking meters when sampling if your supervisor has made arrangements with enforcement and has issued you a placard. There should be no problem with this as long as you keep your CDFG placard on your dashboard. If you happen to see parking enforcement, introduce yourself and explain your purpose for being there, and point out your car to him or her. This may alleviate the need for your Supervisor to take care of a parking ticket later on.

### Parking Tickets

Occasionally, you may be the unlucky recipient of a parking ticket while sampling. If this should happen, contact your Supervisor as soon as possible, and he or she will attempt to take care of it with enforcement. You may not have to pay the ticket if you parked in an area described as available in the site description and CDFG parking was pre-arranged with enforcement. **PSMFC does not pay parking tickets or for towing.**



## Equipment & Supplies

In order to carry out the interviewing tasks, each Sampler should have the adequate equipment and supplies. Do not wait until the last minute to notify your supervisor when you are short on supplies (forms, equipment, etc). Give them a call or email as soon as you notice you need something. It may take time to get to you in the mail; they may need to order more copies, etc.

## Supply List

1. Site information: map or directions to the site, site codes and alternate sites.
2. Schedule of assignments and site clusters
3. Forms for assigned mode(s)
4. Current Assignment Summary form
5. Clipboard & Pencils
6. Measuring board & tape measure
7. 50, 25, 4 lb. & 1 kg. scales
8. GPS receiver and extra batteries
9. CRFS maps
10. Plastic baggies for weighing small fish
11. Several copies of the Privacy Act Statement
12. Picture ID card
13. Rag for wiping hands
14. Sampler Manual and interviewing reference materials
15. Field guide/keys appropriate to your area for fish ID.
16. Other administrative forms and supplies
17. Tide book
18. Current fishing regulation booklets
19. Binoculars
20. Cellular phone (your own, if available)
21. Watch

22. CRFS/RecFIN brochures
23. Defensive spray (if desired and legal) or whistle

When sampling, you must have your fish ID books/sheets, measuring board, CRFS maps, and all scales with you at all times. You must also have your manual with you; it is acceptable to have it in your car. If you are lacking these elements when a supervisor visits you in the field, you may be sent home.

A Sampler should never take less than 50 forms to an assignment. In the heavier fishing seasons, 100 may not be enough with second assignments. The Sampler should always plan ahead. Make arrangements to get more forms well in advance of running out or getting low.

### Coding Forms

All forms should be completed on site. Do not leave the site with the intention of filling them out later. Complete the forms while your memory is fresh.

Form	Survey Mode	Data
Assignment Summary Form	ALL	Effort & Form counts
Angler Form	MM BB PC PR2	Catch and Effort
Discarded Fish Form	ALL (mainly PC)	Measurements
PR1 Form	PR1	Catch and Effort
On-Board CPFV	PC	Catch and location
Vessel Check	PC (anytime)	Effort checks

### Editing and Mailing forms



All forms will be reviewed for quality by the Sampler before passing them on to the Supervisor. Always check the manual first for issues; you are responsible for knowing what is in there, and following the correct procedures.

The Supervisor will review the forms a second time before passing them on to data entry. Do not wait until the data is turned in etc. to find out if you made a good editing choice or not. Your supervisor or their assistant can also help you with your field questions, questions on the forms, and supply needs.

The data entry Supervisor will review the forms a third time before distribution to entry technicians for entry into computer files. Since each step takes time, it is very important the forms keep moving through the system; therefore editing is an ongoing task for the Sampler. The entry and initial processing programs prevent further detectable errors from getting into the database. Errors found on the forms at data entry are logged and reported to your Supervisor and compared with performance standards among all samplers. Poor quality editing will result in remedial action by your Supervisor.

## Roles and Responsibilities

### Mailing

All forms should be mailed to your Supervisor on Monday, or Tuesday if Monday is a holiday. This is especially critical during the last week of the month. The forms must be edited and re-mailed to Data Entry by the Supervisor by the end of the week. Do not hold up forms for questions, write a note on a Post-it and mail them in. Leave messages on the answering machine if need be, explaining the problems. Mail forms in a strong manila envelope. Tape the envelope both lengthwise and vertically. Mail forms by first class post, flat rate USPS envelope or ship by UPS. Do not mail your forms low class or book rate. Include the receipt with your expense account.

Organize your Assignment Summary on top of the matching forms, and keep all the forms together sorted by assignment date. Do not separate the forms by site (by turning alternate sites forms upside down), since this slows down your Supervisor's editing procedure. For the end of the month, it is critical that these forms be mailed to your Supervisor as soon as you are finished with them so that the data can be processed into monthly files for analysis and catch estimation.

Before mailing please:

1. Edit forms for legibility and accuracy
2. Put in order by date, assignment number, form number, page number
3. Take off paper clips, rubber bands
4. All interviews on multiple forms should be stapled together
5. Tape the package, completely around, both vertically and horizontally

### Editing

Almost all of your editing should be done in the field. Do not carry them home to fill in later. Complete the forms while your memory is fresh. Write above, **don't write over or erase**, your changes should still be legible.

If possible, editing should be spaced throughout the day, with minimal editing later on. Editing in this manner is not only cost effective, but also reduces the chance for errors, since you will be editing while the events of the day are still fresh in your mind. If for some reason you are unable to edit your paperwork the same day, you should take the forms with you the next sampling day, and edit during slack time. Under no circumstances should you "save up" all you're editing until the last minute.

If it is necessary for you to finish your editing at home, your Supervisor expects you to make reasonable claims on your Assignment Summary regarding your editing time. While you shouldn't be claiming 1 or 2 hours of editing time per sampling day, you shouldn't necessarily be claiming zero time either.

Time spent editing is just as important as time spent collecting data. Errors or omissions found after forms are submitted require extra time to investigate and are often difficult to remedy. They also aggravate your Supervisor, data entry personnel, and the data analyst, and may imply to your Supervisor overall careless work.

Before mailing, make sure you have edited your forms completely. The forms should all be in order by date, assignment number, and form number. Make sure that all 0's, 8's, and 9's have been entered where appropriate, and that all state and/or county codes are filled in. All angler forms with fish continuing onto another sheet should have the sheets stapled together, with items 1 through 10 filled out on both sheets.



#### General Coding and Editing Tips

You are encouraged to edit and correct your forms during slack time while sampling or at the end of the day while your memory is fresh and again prior to giving them to your Supervisor. The time spent in editing is just as important as time spent interviewing anglers. Errors

found later require more time and money to fix!

1. All forms, counts and boat records must have a unique time, which must be sequential.
2. Make notes on the form to explain unusual situations. For example, if the angler's state of residence is other than California and day's saltwater sport fishing in California is greater than zero, put a note explaining this apparent discrepancy. At first glance, your Supervisor will think that the questions were asked wrong or the information was incorrectly recorded.
3. If there is a group catch, the angler form with the fish (the catch leader's form) can be before, between or after the other angler's forms (catch follower's forms).
4. Make sure that the angler's name matches with gender.
5. If the angler you've interviewed has provided you with their city of residence and neither of you knows the county, leave it blank. Your Supervisor will determine the correct county and enter it. Don't guess and enter a wrong code!
6. Check for empty boxes and for codes and code sequences that are impossible. Be sure to check empty boxes for items you may have wanted to look up later, such as county of residence.
7. It's OK (and sometimes very helpful) to leave your field notes on the forms - this is not a problem during data entry.

#### Roles and Responsibilities

8. Rewriting is called for when the form become illegible due to poor writing or lots of fish slime and scales. Staple the original form to the back of the rewrite. Do not use white-out or erase the original.
9. Put your forms in the order that the interviews were done (interview number and time).
10. Make sure the angler forms and the Assignment Summary form information matches (date, site etc.) and all unusual conditions are marked on the form or noted in your comments for your Supervisor.
11. Entries should be right justified within the boxes for the entry. Key questions left inappropriately blank will result in 'refused' status.
12. Entries may be padded with leading zeros. If a fish measures to 123 mm, the entry for four coding boxes may be "0123". An exception for the one or three digit target species is allowed to be right justified.
13. Multiple entries on the angler form under "identified catch - type 3" with duplicate common names, species codes, number of fish and disposition may be indicated with downward pointing arrows into the last entry for each column of data. In this case, only the first row would have all boxes filled out. The remaining fish of that species would have only the length and weight boxes filled in.



#### Specific Editing Checks

Specific editing checks address some of the most common errors found on most forms during Supervisor editing and data entry editing. You will need to become familiar with the forms before fully understanding these items.

1. All forms from one assignment must have the same assignment number and assignment ID.
2. All forms from one assignment must have same and accurate date.
3. All angler forms or PR1 boats from one day must have different time.
4. Site codes must agree with the county code. It's very easy to slip up and use the wrong county code, usually the one where you spend the most time. There can be more than one site used during an assignment.
5. Gears other than rod and reel may be so uncommon that the "1" or 'H' may get used without thinking. Be sure that you are not coding from memory.
6. Reported fish coded to species level for groups like rockfish (that are hard to identify) are questionable, especially if the angler has none of those fish in his bag. Make a notation on these.
7. Look for missing and wrong fish codes and check all the lengths and weights. You should be able to pick out odd ones, like fish under 100 mm or weights over 10 kg. Leave notes on the form explaining the situation.

Do not erase records if there is room to rewrite them. Line out records but leave legible so that they may be used as a reference for your rewrite or change. Transcription errors may occur.

## SAMPLING ASSIGNMENT MANAGEMENT

Your assignments to sample anglers are selected with one of the target survey modes in mind (MMPR2, BB, PC, or PR1). Your sampling should be primarily directed in your assigned mode. However, when fishing is slow in the assigned mode, you may sample in other modes at the site under instruction from your Supervisor and this manual. Depending on the type of assignment, sampling may be conducted all day, for a short time at different times of the day, or may be spread out over a longer period of time during the month. The fairly complex structure of the sampling assignments among modes of fishing is primarily due to differences in the surveys. Some procedures are to minimize potential biases and optimize sampling costs...

<i>Survey</i>	<i>Assignment Description</i>
MMPR2	Sample a cluster of MM and secondary PR fishing sites for counts of boats and anglers and angler catch. Both modes may be covered in the same cluster and same site(s).
BB	Sample a cluster of beach and bank fishing sites for angler catch.
PC	Sample one or more party and charter boats at one or more sites. Usually one boat is sampled on-board for the day.
PR1	Sample one primary PR site for effort and catch for the day.

Be aware the fishing effort changes for several reasons, such as wind increase, tides, especially in bays, and for fisheries with catch limits, anglers may limit out may finish early. At times it may seem that you are wasting time; however, sampling is used to determine numbers of anglers (effort), including when effort is low or absent.

### Site Assignments

All fishing sites within a state and county are assigned a unique site code. County and site code numbers, or OSP port codes, will be given to you with the site assignments for the month of sampling. The correct county and site codes should appear on the Assignment Summary Form and sample forms obtained during sampling. This list may change.

DISTRICT	MONTH	CNTY	NAME	SITE	AMODE	CLUS	SUBSITE	TMODE	ACTIVE
	1 OCT	73	Fiesta Island	9	BB	SDG2			
	1 OCT	37	Marina Del Rey Launch Ramp	10	MMPR2	LOS6	B	PR2	NO
	1 OCT	37	Marina Del Rey Jetties	10	MMPR2	LOS6	D	MM	
	1 OCT	37	Marina Del Rey Sportfishing	10	PC				
	1 OCT	37	Marina Del Rey Launch Ramp	10	PR1				
	1 OCT	37	Santa Monica Pier	12	MMPR2	LOS8	B	MM	
	1 OCT	37	Long Beach Sportfishing	13	PC				
	1 OCT	37	22nd Street Sportfishing	14	PC				

*Example of site list*

Your Supervisor will provide you maps and directions to the sites for which you will be responsible. If you are unable to work on the date of an

## Sampling Assignment Management

assignment contact your Supervisor or follow the instructions your Supervisor has provided in this case. Each assignment is also provided with a unique assignment ID code (ASSN ID#) for tracking purposes.



### Assignment Selection

Your assignments are determined by systematic or random selection of fishing sites or days by mode within the geographic districts. This will be based on historical fishing effort or pressure for PC mode and on systematic sampling of sites or clusters of sites for the other fishing modes. Each site has an estimate of past effort (fishing pressure) for each mode based on Sampler data collection of angler and boat counts. Use of average historical effort for future sampling should take into account the anticipated changes in fishing effort for each month based on regulations, etc. and kind of day (KOD) which is weekends & holidays or weekdays.

<i>Survey Mode</i>	<i>Sample Unit</i>	<i>Intercept Sample Rate</i>
PC	Boats	<5% and varies by month
PR1	Site-Days	20% or 8 days per month fixed
MMPR2	Cluster-Days	10% or 3 days per month fixed
BB	Clusters	<3% or < 1 day per month

*Major CRFS sample units and sizes*

The Supervisor generates a number of sampling assignments for each major mode of fishing for each month. The Supervisor may utilize historical productivity data on average interviews per assignment and the budget status to determine the numbers of assignments desired. Your Supervisor maintains or accesses the effort information supplied on the Assignment Summary. Also, periodic site visits, word of mouth, and "fish reports" from the newspaper, CPFV logbooks and Internet may be used. Because some sites are clustered and chosen based on effort, it's very important that the counts and pressure information supplied on your Assignment Summary is accurate.

These are projected assignments and a number of factors may affect the actual number of anglers that may be present at your assigned site in the target mode. Because of this we do have procedures discussed below for using alternate sites in some fishing modes, sampling in other fishing modes present at the site or moving to a second assignment when fishing effort is low.

It is important to notify your Supervisor about changing conditions at the sites that may affect fishing pressure, such as construction, special events or washed out roads. Fluctuations in angling pressure at one site may also cause changes at adjacent sites. Please be familiar with the rules for these on-site procedures presented in this manual or discuss it with your Supervisor if you do not understand them. Following these procedures is necessary to maintain the statistical validity of our sample.

## Sample Assignments

Sampler schedules are produced for an entire month at a time for all surveys. Your Supervisor will work with you to get them on your calendar. Sample assignments are produced in a tabular format, but may be copied into a calendar format. The columns in the table will be described by your supervisor and describe the fishing mode(s), date and locations(s) where you will sample.

district	dow	kod	mon	day	year	cnty	site	mode	assnID
4	Mon	wd	Nov	1	2004	1	BER	PR1	1104001
4	Mon	wd	Nov	1	2004	75	SFO2K	MMPR2	1104001
4	Wed	wd	Nov	3	2004	81	PRI	PR1	1104001
4	Thr	wd	Nov	4	2004	81	400	pc	1104001
4	Thr	wd	Nov	4	2004	81	SFO1D	MMPR2	1104001
4	Fri	wd	Nov	5	2004	41	SAU	PR1	1104001
4	Fri	wd	Nov	5	2004	75	SFO3	bb	1104001
4	Fri	wd	Nov	5	2004	1	SFO5A	MMPR2	1104001
4	SAT	WE	Nov	6	2004	41	400	pc	1104001

*Example assignment schedule*

The mode of the assignment, the assigned mode, will determine how the site or sites are sampled (which forms) and also how much time you will be working:

<i>Assigned Mode</i>	<i>Duration</i>	<i>How Sampled</i>
PC	On-board a trip	Each angler and fishing spot
PR1	All day at a site	90%+ effort counts, less for catch
MMPR2	Few hours per site	Anglers for catch, effort counts
BB	All day roving	Anglers for catch

*Major CRFS assignment types*

There are specific instructions for each survey mode, both in handling the site assignments, rescheduling and on-site procedures.

### Rescheduling

You may or may not reschedule the assigned day without approval depending on the survey mode. There is more flexibility in the PC and BB assignments than in the PR1 and MMPR2, with the PR1 being the most critical, especially in salmon fisheries. If you cannot make a day, you are ill, or have an emergency; contact your Supervisor immediately. Additionally, if

you cannot contact your Supervisor, contact another Sampler in your area and ask if they can substitute for you.

### Pressure Checks

Occasionally you may have a “site check” or “pressure check” as an assignment on your schedule. This type of



## Sampling Assignment Management

assignment is for good weather only. Your Supervisor will usually assign only one mode to check, which you will record on your Assignment Summary as disposition “0” (pressure check), and you should check as many sites as possible on the date of the assignment. This is also an opportune time for you to verify and/or elaborate on directions to and status of the sites. Use a separate Assignment Summary form for the pressure check, since you will be checking numerous sites. You should record pressures for each site, along with the time of the visit, as well as any comments on the Assignment Summary, such as weather, species noted, fishing rumors, etc.

### Adding / Removing sites

Occasionally, sites need to be added or deleted from the site list. New launch ramps are constructed, or new party boat landings open for business. Boat landings can also shut down their businesses from lack of customers or boats, or due to change of ownership. Regardless of whether these site changes are temporary or permanent, do not assume your Supervisor is aware of them. It is your responsibility to notify your Supervisor of these changes as soon as you are aware of them, through personal communication, or via e-mail or Assignment Summaries.

### Maps / Descriptions

Current site descriptions and maps are provided by your Supervisor. These descriptions not only give specific instructions on how to get to the site, but also include site boundaries (if any), the facilities available at the site, and any phone numbers or addresses you may need, such as party boat landing information. Notify your Supervisor if you discover information for a site is incorrect.

### BB and PC Assignments

PC assignments are selected proportional to angler effort by site and the number needed is determined by past productivity of sampling (numbers of anglers interviewed per assignment). BB assignments are selected in proportion to the number of BB clusters in each sampling region.

The assignment given you for each particular day specifies a site or cluster of sites to be sampled. Every effort should be made to sample at that site(s) and in the assigned mode to obtain the maximum number of angler intercepts. You must always examine the assigned PC site or BB cluster first. If effort is low or absent at the assigned site and mode there are separate BB and PC survey procedures you should follow.

The Sampler will be responsible for deciding the best time to sample BB and PC modes. It is important to maintain variability when sampling and not fall into a predictable pattern of sampling at the same time of day. While you generally need to sample during the peak fishing hours, it is also important to sometimes sample an hour or two earlier or later. This type of sampling will minimize bias in the data you collect. If we determine that

randomness in sampling times is not being maintained, specific sample times will be assigned.

### Sub-region and District Goals

Each District has goals for the numbers of assignments by mode. For PC and BB the goal is to get as many angler interviews as possible with each PC and BB assignment as well as from opportunistic PC and BB interviews conducted while performing other assignments.

### Assignment Goals

The Sampler's daily goal is to obtain as many intercepts for effort and catch as possible in a reasonable amount of time in the assigned mode. If angler effort is low the assignment may be modified by reduced hours or by surveying more BB or PC sites. Samplers may be given more than one assignment per day for low angler effort sites or periods of time.

#### *Rescheduling BB and PC Assignments*

You will receive a monthly calendar from your Supervisor approximately one week before the 1st of the month with your assignments for the coming month with the site and mode in which you are to sample.

It is crucial for statistical methods that samplers make all assignments as scheduled. If you miss an assignment, it needs to be rescheduled. To do this, we move weekday assignments to the next nearest week day and weekend assignments to another weekend or holiday if an open date is available. We cannot carry over missed assignments from one month to another, but the week can be changed. If you miss an assignment, you must note it on an Assignment Summary as reassigned (2). You may not cancel an assignment without permission from your Supervisor.

Exceptions for not rescheduling a weekend assignment to another weekend day are:

1. There are no weekend days left; the Sampler has a full schedule for the rest of the month.
2. The boat is full that weekend and there are no open weekends left.

In these cases, which usually occur near the end of the month, the supervisor may move the weekend assignment to either a Friday or Monday, or the nearest weekday to the original assignment.



### Scheduling PC Trips

Your supervisor will provide you with a list of charter boats and landing sites with contact information. You will call ahead of time to determine the availability of PC boats for sampling on-board or dockside. You may use alternate sites if sampling cannot be conducted at the assigned site. In this

### Sampling Assignment Management

case, you must still list the assigned site as the first site visited on the Assignment Summary. About two days before your assignment, call the assigned site landing(s) and ask if boats are going out on your assigned date. If they are, tell them you are the CDFG CRFS fisheries observer. If possible, going to the office is easier than calling and you can talk to them more easily and have a better chance of getting on the boat. Since you may be contacting a number of different people at different times, you may want to keep a contact log with numbers, names, dates, times, and messages you may have left so that you don't duplicate or omit contact efforts.

Contact your Supervisor early in the month for instructions when assignment and boat scheduling is unsuccessful and assignments are not getting completed in a timely manner. Your Supervisor may reassign an assignment to a specific site, boat or trip type in an attempt to represent the fisheries in your area with a limited number of assignments.

### Selecting a PC Boat at a Site with Multiple Boats

Vary the boats at one landing as they have different locations and methods of fishing. It is possible to ride half day trips.

1. On the day of your assignment, if there is only one available boat going out, ride that boat, regardless of species.
2. If two or more boats are going out on the date of your assignment and you have a choice, ride the boat that represents the majority of species effort for that day for that port. If for any reason, you have no choice, ride the only boat that is going out or are able to ride.
3. If no boats are going out on the day of your assignment, you have two options:
  - a. Call the nearest PC site and repeat above. You may go through any number of nearby sites in this manner.
  - b. Reschedule the assignment to the next nearest day there is an available boat at the original site.



### Sampling Charter Trips

You should be able to sample chartered boat trips along with open party boat trips. Chartered trips can make up a large proportion of the total CPFV fishing trips, especially during the summer. It is very important for us sample chartered trips, as well as open party in order to accurately represent CPFV catch and effort. According to the PCS survey, chartered trips can make up a large proportion of the total CPFV fishing trips. Make sure that you use the proper code on the angler forms to indicate charter (7) as the mode of fishing.

Our policy is to sample chartered trips with consent from the charter master (the charter master is the private party individual who has paid for a private group to charter the vessel for fishing). We have the authority to sample chartered trips that are not filled to Coast Guard rated maximum capacity.

When you call the landing to make a reservation, ask about all scheduled trips going out for your assigned trip type. Explain to the reservationist that you are a CRFS sampler, and that we sample all trip types, including charters. Confirm with the reservationist that you have also been informed on any chartered trips for that trip type, and get the name of the individual that you spoke to. If there is no open party trip going out for your scheduled trip type, but there is a charter for that trip type, you should request to sample that trip with consent from the charter master.

You should ask the landing if there is way you can contact the charter master or captain regarding the trip, or if the charter master can call you. If you are unable to confirm with the charter master, you should show up an hour before the trip is schedule to leave so that you can have the opportunity to explain what you are doing to charter master, and request permission to sample onboard. You should also occasionally attempt to sample chartered trips even (though there is an open party trip available) when you have the opportunity to get on a boat that is rarely sampled.

Always keep an eye out for information on charter trips and charter vessels when you are in the field. Introduce yourself to crew and captains of vessels that we don't normally sample, and find out about their trips, and how they could be contacted for sampling. Some charter vessels may not book trips through the landing office, or may be overlooked by office personnel because they are not running the typical "open party" trip that we are usually placed on.



### PC Boat Refusals

Under section 105.5 (see Vessel Check form instructions) samplers have authority to access all PC boats. However, you may need to explain the survey and provide evidence that you are a CRFS sampler. Always be prepared with copies of section 105.5, your

PSMFC CDFG ID, a CRFS handout, and your supervisor business card so that you are prepared to demonstrate the legitimacy of the sampling program, and explain the survey. You should be familiar with the relevant sections in the CDFG regulation booklet on CRFS cooperation, and have a copy to show to charter masters and landing personnel.

Document all attempts, (successful or unsuccessful), to sample chartered trips on the vessel check form. This is very important. Make sure that you indicate that the trip was a either a charter or a party boat in the comment section of the form. If the attempt to sample was not successful, explain in the comment section why.

If you are outright refused by landing personnel or encounter any hostility or difficulties, please provide the supervisor with detailed documentation (date, name of individuals and vessels concerned, details of refusal or

problem and how you dealt with it). Provide this information the same day of the event.

### Charter Refusals

If the charter master of a chartered boat declines, it will be considered an acceptable refusal. If this occurs, try to sample an alternate trip or contact me to reschedule. However, if the landing or captain of the chartered vessel refuses you and does not allow the charter master to make the decision, the act will be deemed an "illegal refusal". For illegal refusals, you should inform the landing personnel or captain that the action is in violation of 105.5. You may need to leave the site if the situation becomes hostile.

### Special PC Assignment Summary and Vessel Check Instructions

1. The Assignment Summary Form (ASF) will be coded for each SITE scheduled.
2. The Vessel Check Form (VC) will be coded for each BOAT scheduling attempt that provides information about a date and trip (or no trip).
3. An assignment scheduling attempt or vessel check record can only be recorded if information is obtained about the site effort or vessel effort. Information is obtained from phone calls, on-site visits and published information. Nothing will be recorded if no contact or information is collected, i.e. unreturned messages and unanswered phone calls.
4. If you later determine that the site or boat did not have any PC effort when you had been provided contrary information, modify the AS and VC forms to show the change in effort at the site for that date. If you determine it was a refusal for you to sample the boat, also code a refusal on the VC Form.
5. If the Sampler is attempting to ride a specific boat and determines that other boats are available to ride at the assigned or eligible alternate sites, attempts to schedule the boat or site are not recorded on the AS. However, the VC will have records of those checks.
6. If instructed to sample a specific boat or trip type, record only one AS record when the assignment is complete or cancelled (sample disposition=1, 6).
7. Record attempted/unsuccessful sampling attempts when the original assignment could not be completed as scheduled (boat is full cancelled, etc.)

### Key to PC sampling procedure

Assignment at a site and date

1 Site has no effort on date

Check alternate sites on date

Alternate sites have no effort on date

Reassign date (last site sample dispo 2 = reassigned)

2 Site has possible effort on date

Select boat to sample on date (specific boat if instructed)

A. Unable to sample boat or refused on date

Select alternate boat at site

Unable to sample next boat or refused at site (dispo 5)

Select alternate site on date

B. Reassign date to when boat goes out (for specific boat)



### PC Scheduling Questions and Answers

Q. I keep calling the booking office and there is no answer. How do I code the forms?

A. Code nothing; you have no contact and no information.

Q. I call around and no boats are going out at the assigned or alternate sites on that date. What do I do?

A. You code the assigned sites and alternates on your Assignment Summary Form (ASF) for the assigned date with a reschedule. You also code your Vessel Check Form (VC) with the vessel inactivity.

Q. I leave messages but they don't call back. Do I code a refusal?

A. Code nothing; you have no contact and no information.

Q. I'm told that no boats are going out, but later find that was a deliberate lie.

A. Code a refusal for that date and boat(s) on the VC form. Leave the ASF coding. Report this to your Supervisor.

Q. I'm told earlier that no boats are going out, but later find that a boat went out because the weather was nice.

A. You didn't anticipate that? Don't code a VC refusal for the contact date. Code the boats activity on your VC for the trip date.

Q. I'm told that no boats are going out. Do I code an attempt?

A. Yes, code the boats on the VC. Also code the site on the WR unless you're after a specific boat or trip type.

Q. I'm told by the office that no boats went out, but later find that one went out and the captain would have let me ride. Do I code a refusal?

A. Yes, code the refusal. Remember to always note "who" did the refusing on the VC. Also include your comments in the follow-up email to your Supervisor.

Q. I'm told the boat will go out if there are enough passengers. Should I use an alternate boat or site? How would I code this?

A. You will have to re-contact the boat either by phone or go there on the assigned date. You should be ready to use an alternate boat or site if the boat does not go or is full. Code nothing yet. Coding of the AS and VC will depend on what the outcome is, follow the guidelines.

Q. The office refused to talk to me. What do I do?

A. Code a refusal on your VC and contact an alternate boat or site. Contact your Supervisor with the refusal details.

Q. The office schedules me on a boat, but the captain refuses me. I ride one of the other boats at that site. Do I code a refusal?

### Sampling Assignment Management

A. Yes, code the boats for that site and date on your VC. Indicate who refused on which boat and detail the event to your Supervisor.

Q. I call and schedule to ride a boat three days before the trip. The trip is completed on the assigned date. Do I code the date of the phone call?

A. No, just code the assignment as complete on the assignment date.

Q. I call and schedule to ride a boat at the assigned site on a later date than the assigned date. Do I code a reassignment?

A. If you had scheduled that site and date previously or were calling back after calling alternates for that date, you would. However, if this was your first scheduling attempt for this assignment, you must have been instructed to sample a specific site or boat by your Supervisor. You would NOT record a reassignment if that were the case since normal sampling procedures were not followed. Normally, you would contact alternate boats or sites and record those attempts before rescheduling.



### BB and PC Site Selection Options

For BB mode you will be provided with a cluster list of sites to use. When you are provided a cluster of BB sites, you must visit all sites in the cluster. Do not conduct all of your sampling at just one site when you have been assigned a cluster of BB sites. Also, do not visit sites outside of the BB cluster. You may use as many sites in addition to the primary assigned site to attempt to obtain interviews in the assigned mode for PC. These alternate sites should be adjacent sites that contain the mode of your primary assignment.

The general guideline is: if it is estimated that less than one interview per hour in the assigned mode will be obtained at the assigned site, you may do one of the alternate options below. Use your own judgment to decide if conditions warrant alternate options. If so, is not necessary to remain on-site to see if effort develops.

#### When to sample BB or PC in an Alternate Mode

While in BB or PC assigned mode, you may sample in the other (PC or BB) mode if those anglers exist at the assigned site. Do not sample in the other mode if you are having success in the assigned mode (unless your Supervisor has directed you to get interviews in that mode during that assignment). You may sample in the other mode while at an alternate site.

You may also sample PR and MM mode anglers while sampling in BB or PC mode. However, this is discouraged since the interviews must be coded as special fishery 'B' forms (bonus) and reported separately on the ASF. The data may not be fully usable. Do not waste time sampling PR and MM anglers if there are anglers in the assigned mode to be interviewed. See section on Bonus forms.

#### When to use an Alternate Site or Terminate BB or PC

If it is estimated that less than one interview per hour will be obtained from the assigned BB cluster or PC site with alternate sites after 2 hours, you may terminate the assignment. If you have been given a second assignment

by your Supervisor, you may begin working on it after terminating your first assignment. The second assignment would have a new primary site or cluster and possibly different mode assigned.

In choosing between these options, you will want to consider such things as: progress toward completing all your assignments, tide, ocean conditions, hours worked in the week, time of day and travel time. You should make this decision with efficiency of time and resources in mind as well as expected interviews that may be obtained at the other sites based on the above factors.

The priority you should use for alternate modes and sites during sampling from highest to lowest follows:

1. Sampling at the assigned site in the assigned mode
2. Sampling in the assigned mode (PC) at alternate sites
3. Sampling at the assigned site in other modes
4. Sampling at alternate sites in other modes

Once alternate sites have been used you may return to any of the previously visited sites (multiple times) during an assignment while attempting to get interviews. Be aware that:

1. MM or PR interviews sampled outside of your assignments are considered bonus and are not used for effort estimates, although they can be used for their catch rate data
2. PC or BB interviews sampled outside of your assignments are considered opportunistic and are used for their catch rate data.



### Alternate Site Problems and Solutions

Alternate sites are used only for PC sampling. If you have been provided with a list of BB sites, your assigned site(s) will be the entire cluster.

#### *If no anglers present*

After determining there are no anglers at the target site or BB sub-site, go to the next nearest site in the same BB or PC mode. If no target anglers are present at the next site, go to the next nearest site. You may go to unlimited PC sites in PC mode only. In BB you are limited to the assigned BB cluster. You may cross county lines to do this. Do not cross CRFS District boundaries. You have two hours to visit these other sites to search for anglers or to see if fishing develops. If no anglers are found in the assigned mode in the first two hours of sampling, end the assignment. Your Supervisor will advise you in advance if you should reassign this assignment or if another assignment is available. While waiting for effort to develop or anglers to complete their trip at your assigned mode and site, you may sample in another mode if other mode fishing exists. You may go on to another assignment if you have one.

## Sampling Assignment Management

### *If only a few anglers present*

The guideline is to remain at the site if you can interview at least one angler per hour. If you have been assigned a BB cluster you may canvass the other sites in the cluster for up to 2 hours in search of anglers in the assigned mode. You may return to previously visited sites. You may perform an incomplete interview for a BB angler who is at least 50% done and if the same angler is there upon return, you may update the interview.

Samplers should stay at the site as long as someone is still fishing (and would be missed if you moved to an alternate site). When all the anglers at the site have finished fishing and time permits, samplers should move on to alternate sites until the days fishing activity ceases or the Sampler has worked to the limit of work hours. Exceptions would be an unsafe site, darkness, or extreme weather conditions.



### Two BB or PC Assignments in One Day

Occasionally a Sampler will be given two BB or PC assignments on the same day. The Sampler should use his/her best judgment to determine which assignment should be worked first based on angler activity. Your Supervisor may determine which assignment is to be worked first. Once that determination is made, the Sampler must work that assignment before the second assignment is attempted. In other words, before beginning the second assignment, the Sampler must visit all of the sites to determine that one interview per hour in the target mode is no longer possible on the first assignment.

If time permits after the first assignment is worked, the second assignment can be attempted to obtain a number of interviews in the second assignment. If the second assignment happens to be in the same mode as the first assignment, the Sampler should not sample any of the sites used on the first assignment. If alternate sites are needed during the second assignment, different alternate site(s) should be selected. If the second assignment is in a different mode than the first assignment, it is permissible to use the same sites as alternates if those are the next nearest with the assigned mode. The assignment number (assn# = 1 or 2) should be recorded on the Assignment Summary.

If it is not possible to work both assignments on the same day, the Sampler should follow the instructions of their Supervisor to reschedule the un-worked assignment. Generally this means going to the assigned site on the next available working day of the same kind of day of the week (weekend or weekday). You should record the un-worked assignment using an Assignment Summary to show it as reassigned.

## MM and PR2 Assignments

The MM and PR2 samples clusters (groups) of sites by month using a roving method. The data from this survey and the telephone survey of licensed

anglers (ALD for night and private access fishing) will be used in the effort and catch estimates for the CRFS program.

### Sample Selection

Sampling of days is random across the month with random day selection across weeks. Weekends and holidays are sampled separately from weekdays at different sample rates. Sampling assignments are drawn one to two weeks before the first of the month. Sample assignments will be for clusters of sites. All of these sites will be public access sites. Cluster sizes will vary from one site to several. The number of sites in a cluster will depend on the season and their geographic arrangement...

#### *MMPR2 Weekend and Weekday Days*

Clusters will be sampled on a few days per month by kind of day. The two kinds of days are weekends (including holidays) and weekdays. Effort is expected to be different for these kinds of days and will be sampled separately. Expect more sampling on weekends and holidays than on weekdays due to higher angler effort. Rescheduling of randomly selected days with your Supervisor will respect separation of the kinds of days (KOD). There must always be at least one weekend (WE) or weekday (WD) day in each cluster for a month.

#### *No Anglers Present at MMPR2 cluster*

Never reschedule a MMPR2 assignment due to lack of anglers. Assignments that determine effort for the cluster day is zero are included in the calculation of mean daily effort for the month. For MMPR2 where no anglers are present, the entire cluster must be found to be zero, not just the first site. Do not complete an assignment without determining that no effort exists at all sites in the cluster. The sampler must code all sites in the cluster with start and stop counts of zero on the Assignment Summary Form and code the assignment disposition as 1=complete.

#### *Scheduling of MMPR2 Days*

The Supervisor will work with the Sampler to schedule the random selection of days for each month in advance. This is done to adjust for anticipated conflicts with the Sampler's personal calendar and with other sampling priorities. Sampling sites within clusters may target fishing in MM, PR2 or both (MMPR2). Once scheduled, the Sampler will not change the sample dates without Supervisor approval...



### Site Lists and the Target Mode

MM and PR2 cluster assignments are generated for a particular cluster of sites. Your Supervisor will supply you with a cluster list for each month along with your list of sites. The cluster list is clearly marked with the month and

### Sampling Assignment Management

year. Do not mix the cluster lists between months. The cluster list changes and is unique by month. Sampling from the wrong list could render the data useless!

The cluster list identifies the sub-sites in the cluster and the target mode for each sub-site. The target mode identifies the fishing mode of anglers you will sample for effort and catch. It may also identify other modes which may be sampled opportunistically (sampling outside of the target mode). Your cluster assignment will identify the cluster and the starting sub-site, i.e. cluster site SFO1 starting at sub-site A. Or you may be provided with a specific subsite visit order, i.e. 'C, B, A'.

The target mode for each sub-site for MMPR2 assignments is in the site list and will determine which modes you will be targeting (MM, PR2 or both, MMPR2 for the month. Do not cover a target mode which is not assigned or omit a target mode; it may be impossible to complete or the data may be useless!

AMODE	CLUS	SUBSITE	TMODE	CNTY	SITE	NAME
MMPR2	SFO10	A	PR2	81	103	Redwood City Ramp
MMPR2	SFO10	C	MMPR2	81	102	Coyote Ramp
MMPR2	SFO10	B	MM	81	307	Redwood City Pier
MMPR2	SFO10	D	MM	81	312	Woolley Pier
MMPR2	SFO11	A	PR2	1	104	San Leandro Ramp
MMPR2	SFO11	B	MM	1	312	Dumbarton Pier

*Example MMPR2 clusters from site list*

### PR1 Assignments

The PR1 survey samples single sites about eight days per month using an entire day for sampling. The data from this survey will be used by OSP for bi-weekly salmon estimates and CRFS for direct calculation of monthly effort and catch estimates. This is a critical survey for the program as it covers the most important marine recreational fisheries in the state!

### Sample Selection

Sampling of days is uniform across the month by week with random day selection within weeks. Weekends and holidays are sampled separately from weekdays at different sample rates. Sampling assignments are drawn one to two weeks before the first of the month.

#### *Weekend and Weekday Days*

Ramp sites will be sampled on a number of days per month by kind of day. The two kinds of days are weekends-holidays and weekdays. Effort is expected to be different for these kinds of days and will be sampled separately. Expect more sampling on weekends and holidays than on weekdays. Rescheduling of days with your Supervisor will respect separation of the kinds of days.

### *Scheduling of Days*

The Supervisor will work with the Sampler to schedule the random selection of days for each month in advance. Once scheduled, the Sampler shall not change the sample dates without Supervisor approval. Zero effort days are included in computation of the effort, but do not necessarily require that a sampler stay at the site all day. Sampling is spread out systematically over the weeks in the month to insure that sampling assignments taken throughout the month will be temporally consistent and cover changing effort. Samplers should expect an erratic schedule.



### **Multiple Samplers on One Assignment**

At PR1 sites you may be working alone or with another Sampler assigned to work with you on the assignment. One of you may be designated the 'lead Sampler' for the assignment. You may be scheduled to arrive at the same time or at the different times. Your sampling time may overlap or be in separate shifts. At times, a third Sampler or your Supervisor will also be assisting in data collection. There are procedures for coding the forms with multiple samplers.

It is important to coordinate with your co-workers in designation of tasks and collection of specific data. The purpose is to avoid duplication of data, such as interviewing the same boat twice or performing duplicate counts. You will work efficiently to coordinate your tasks once a second Sampler arrives on-site. The second Sampler should always notify the already present Sampler of their arrival and be prepared to work any sub-task.

## THE ASSIGNMENT SUMMARY FORM (ASF)

The ASF is used to monitor the assignments issued by your CRFS Supervisor. Your Supervisor generates sampling assignments by month and checks progress weekly, using the ASF. **ASFs are used by the Supervisor to monitor such things as time on site, expenditures, assignment disposition, and PC samples.**

Summaries of data from the ASF are generated monthly for analysis of sampling conduct by CDFG, PSMFC and NMFS as required by contractual agreements. Regardless of the assignment's disposition, an Assignment Summary Form must be submitted. The ASF records information about sampling assignments and site visits on the ASF. All assignments issued and every site visited are logged even if no anglers are interviewed. The summary is also used to record vital counts of anglers and boats used to estimate effort.

### Assignment Summary Form (ASF) Layout

The form is structured with three general areas, a header, site rows and footer. The header is for recording information about the assignment as a whole, including the amount of work the Sampler put into the assignment. The majority of the form is structured in site rows where information about what was occurring at particular sites is recorded. The footer is used to record a summary of important data.

### ASF Assignment Items

The section is required to track the usage of assignments, their assigned fishing mode and cluster (if clustered). Each assignment record is identified in the database with the assignment number Sampler ID, date and Assignment ID.

Assn #	SAMPLER NAME	DRAFT 2005 ASSIGNMENT SUMMARY FORM			
1	Joe Sampler	sampler ID	DATE	ASSN ID	ASSN MODE CLUSTER
		101	20050101	1001	MMPR2 SCA01

### ASF Sampler Items

This section is to report the sampler effort used and any comments.

COMMENT	Really nice weather but only a few anglers. I mailed off last week's forms today.	0.0hr = 58-03 mins	1	ASSN DISPO	5.6	SAMPLING
		0.1hr = 04-09 mins	123	ODO END	0.5	EDIT
		0.2hr = 10-15 mins	75	ODO START	0	NON-ASSN
		0.3hr = 16-21 mins	48	MILEAGE	0	LEAVE
		0.4hr = 22-27 mins	\$5.00	EXPENSES	7.3	TOTAL
		0.5hr = 28-33 mins				
		0.6hr = 34-39 mins				
		0.7hr = 40-45 mins				
		0.8hr = 46-51 mins				
		0.9hr = 52-57 mins				

## The Assignment Summary Form (ASF)

0.0hr = 58-03 mins  
0.1hr = 04-09 mins  
0.2hr = 10-15 mins  
0.3hr = 16-21 mins  
0.4hr = 22-27 mins  
0.5hr = 28-33 mins  
0.6hr = 34-39 mins  
0.7hr = 40-45 mins  
0.8hr = 46-51 mins  
0.9hr = 52-57 mins

**Hours** – record sampling, travel, edit, non-assignment and leave times to the nearest tenth (0.1) hour. You can use the chart in the comment area to convert from minutes.

### ASF Site Rows

This area is used to report each site visit during an assignment. Each row describes the site assigned and/or sites visited during the assignment. **Every assignment issued** must be entered on an Assignment Summary even if you end up never going out to sample. We need to know what happens with each assignment. The ASF will serve as a record of what happened to every issued assignment. We need a record of why an assignment was not sampled. The data will also be used to match with your angler forms.

Assignment dispositions: 1=Complete, 2=Reassigned, 6=Cancelled				MMPR2 CLUS ONLY				ANG FORM COUNTS / PRI BOATS				TOT EFFORT	
Edited By: _____				START COUNT	STOP COUNT	STATUS 12 of CRFS BOATS	STATUS 0 of NF BOATS	SPECIAL FISHERY		ESTIMATED ANGLERS		EST. FISHN BOATS	
SITE NAME / COMMENT				TIME				B	C				
1	CNTY	ARRV	MM									MM	
	SITE	STRT	BB	×	-EFFORT							BB	
	DISPO	STOP	PC	<input type="checkbox"/> MM	<input type="checkbox"/> PR							PC	
	HRS	DEPR	PR									PR	

### ASF Location and Time Items

This section is used to identify sites, how much sampler time was spent, the reason for leaving the site and when specific activities started and stopped. Record the county and site name for assignments which are reassigned or cancelled.

SITE NAME / COMMENT

TIME

1	CNTY	ARRV	
	SITE	STRT	
	DISPO	STOP	
	HRS	DEPR	



### ASF MMR2 Cluster Items

This section is for recording MMR2 start and stop counts. For MM this would be anglers and for PR2 it would be trailers. Only record counts for the applicable site mode(s). These counts are used to estimate the mean hourly effort. The MM and PR2 check boxes must agree with the target mode of the sampled site for the month of sample for MMR2 assigned modes. Target modes are listed on the site list.

	MMPR2 CLUS ONLY	
	START COUNT	STOP COUNT
	MM	
	BB	x -EFFORT
	PC	<input type="checkbox"/> MM <input type="checkbox"/> PR
PR		



### ASF Angler Form / PR1 Boat Counts

This section is used to record the numbers of angler forms by fishing mode or PR1 boat records by category. These counts are used to verify that all of the data are accounted for and to quickly determine sample sizes.

	ANG FORM COUNTS / PR1 BOATS			
	STATUS 12 or CRFS BOATS	STATUS 0 or NF BOATS	SPECIAL FISHERY	
			B	C
	MM			
	BB			
PC				
PR				

### ASF Angler and Boat Estimated Effort (Pressure) Items

This section is for recording an estimate of the number of total number of anglers or boats for use in determining the sample rate for representative sampling.

#### Estimating Total Effort

The sampler will estimate the number of anglers and boats at the site by mode during the time of your sample. This provides an estimate of “fishing pressure” at this site so the effort distribution can be monitored and compared with the sampling distribution. It is not required that this estimate be exactly calculated and may be off from predicted values by as much as 10% due to missed counts and other circumstances.

For anglers this is the sum of all anglers you interviewed, anglers missed while you were sampling and angler still fishing at the end of the site visit.

### The Assignment Summary Form (ASF)

All the boxes under Total Effort must be filled in. There are codes for don't know and not-applicable.

TOT EFFORT	
ESTIMATED ANGLERS	EST. FSHN BOATS
	MM
	BB
	PC
	PR

#### ESTIMATED ANGLERS =

SUM of “Eligible” anglers skipped and missed +  
SUM of “Status 1, 2 forms” (minus incompletes) +  
SUM of “Bad angler” (refusals, etc.) counts on forms +  
SUM of “Anglers remaining” at the site when you left  
(eligible when done fishing, includes incompletes)

For PR mode, anglers still fishing can be calculated by the number of boats and/or trailers in the parking lot *times* by average number of anglers per boat observed for that day or average day at the site. The average number of anglers per boat is the number of anglers divided by the number of boats. If you don't have any experience with an average number at the site, use “2” anglers per “fishing” boat. You may attempt to account for non-fishing boats, shellfishing and boats fishing in freshwater or not in U.S. waters, etc. It may be possible to exclude sailboats and jet skis due to the type of trailers they use. An approximation is allowed.

Example: You encountered 10 returning boats with a total of 16 eligible anglers, so we have  $16/10 = 1.6$  anglers per boat  $\times$  12 remaining trailers = 19.2 or 19 remaining anglers. The composition of the boats does not matter; i.e., two boats were not fishing, one boat was crab fishing, five boats had only one angler, one boat had five anglers, etc., if you use the above formula.

For PC mode, anglers still fishing should be the number of anglers reported at the PC landing office(s) for all PC boats from that site that were out fishing at the time (not necessarily the entire day). Remember, a site is defined by its “site code” and may have more than one mode possible. Often, the “site name” will describe the major fishing mode, but the “site code” can include nearby fishing in other modes. An approximate count is allowable here as well.

#### Do not leave any Total Effort boxes blank (code #, “N” or “/”):

- If anglers fishing in the mode are not possible at the site put “N”.
- NOTE: This applies to the modes designated as available at the site as coded not just for the working mode. However, some sites may be split into separate site codes by mode, so counts for the other mode should be listed as a pressure check at the other site in its own row.
- If the mode is possible but none were present put “0”
- If the mode is possible but you were unable to get the total put a “/”

Q. What is the difference between total anglers or total boats and start and stop counts?  
A. The start and stop counts are instantaneous counts at a specific time, while the total anglers or total boats are the number for the entire time you were on-site. So, total anglers include people who have left the site since your start count. Therefore, for a

pressure check when you are on site for only a brief time, usually no one leaves, so it is the same as a start and stop count.

### Footer - Section 7: PR1 Totals


The "totals" area is used by your Supervisor to monitor sampling and catches for weekly estimation. It is to be filled out for PR1 assignments using the sum of the totals from each PR1 Form. If you are in a salmon area you will normally be required to report these daily totals to your field Supervisor or another designated contact person each Monday by 7:00 AM. You may be asked to report daily totals with a PR1 Report Form, which is an informal summary of these and other totals for each assignment in a week.

CRFS	TOTAL	TOTAL	SALM	SALM	KING	COHO	KING	COHO	TAG	SEAL	MISSD	OFF
BOATS	BOATS	ANGS	BOATS	ANGS	KEPT	KEPT	RELS	RELS	COUNT	TAKE	BOATS	SITE

### ASF Item by Item Instructions

The Assignment Summary Form (ASF) is used to monitor the sampling assignments, both completed and not completed. Sampling assignments are generated by month based on forecasted fishing effort and a target number of samples needed by wave and mode. The Supervisor uses the ASF to monitor progress towards sampling goals and distribution of sampling by county and month.


FIELD	INSTRUCTIONS	CODES AND FORMATS
HEADER		
Assn #	The assignment number will be "1" unless you are issued more than one assignment in a day. For pressure checks, code the assignment number as "0" (zero).	0= pressure check 1=first assignment 2=second assignment
<p>Q. When do I change the assignment number (item 1)?</p> <p>A. You may have more than one assignment for the day. But you will usually have just one. You will be given the assignment by your Supervisor as to the mode and site you are to sample. Remember to start re-numbering interviews from 01 for any new assignment you switch to for that day.</p> <p>Q. What is a pressure check?</p> <p>A. When you go to a site just to count anglers and boats. Pressure checks are allowable during all modes of sampling. Pressure checks can help improve our average MM &amp; PR2 counts. Do not interview anglers during a pressure check.</p>		
Sampler	Print your full name. Do not sign.	Billy Bobbit not <i>Billy Bobbit</i>
Samp #	Enter your personal 3-digit CRFS Sampler ID code in this field.	100 to 399
Date	Enter the assignment date	YYYYMMDD Example: 20070101

FIELD	INSTRUCTIONS	CODES AND FORMATS
<p>Q. What is the date and time when I ride a charter overnight?</p> <p>A. The date of the assignment will need to match the date of the interviews. The date of the trip is the day the trip ended (fishing concluded). Only record one row with one date for the boat trip on the ASF. If departing before midnight, record the actual departure time in the comments section and put down 0000 for the "departure time". Record your sampling hours under "HRS on site", not the hours you were on the boat. Sleeping hours are excluded. Code the "time interview started" on the angler forms beginning in the hour fishing concluded and space 1 minute apart.</p>		
Assn ID	Enter the 6 digit assignment ID. Each generated assignment is given a unique number. The number should be used for each assignment on its issued date and every time the assignment is attempted	011001 to 126999 This is the only box that needs a leading zero.
Assignment Comment	Summarize and describe your day's activities in the space provided. Include weather conditions such as sea state, unusual events and unusual angler activities. Also, comment on re-assignments, missed and cancelled assignments. Include descriptions of catches of fish, especially rare species. Do not needlessly duplicate information from angler forms. Describe other conditions which required you to leave a particular site before completing your assignment. The information here is used by your Supervisor to monitor conditions in the field. The data may also be used as information for background analysis provided with the annual catch and effort estimates. Record the reasons for any expense here.	<p>"The beaches were empty due to gale force winds. "Assignment reassigned because of engine problems" "5 = went home early because of doctor appointment" "PC avg. 4 RF each; a few ling also landed"</p> 
Assn Mode	Enter the assigned mode. The assigned mode will appear on your sampling schedule (calendar). The assigned mode does not change even if you only obtain interviews in an alternate mode.	<p>PR1= Primary private / rental boat sites.</p> <p>MMPR2= Man made structures &amp; secondary private and rental boat sites.</p> <p>BB= Beaches and banks.</p> <p>PC= Party and charter boats</p>
Cluster	For MMR2 and BB record the cluster site code. The cluster code is the county code with a number suffix. This box should be blank when assigned mode is PR1 or PC.	SC01 to NC05
Assn	For Dispositions other than "1"	1=Complete:

CRFS Sampler Manual

FIELD	INSTRUCTIONS	CODES AND FORMATS
Dispo	<p>the Sampler must record the conditions or reasons in the comments section. Record the county and site name for assignments which are reassigned or cancelled. There is another disposition below for each site (site disposition). This one is for your assignment for the day and is called "assignment disposition". The codes are unique for each disposition. The assignment disposition is 1, 2 or 6.</p> <p>Unacceptable reasons for leaving an assignment incomplete:</p> <ul style="list-style-type: none"> <li>You leave early to beat the traffic</li> <li>You have to go to your other job</li> <li>You want to participate in the good fishing</li> </ul>	<ul style="list-style-type: none"> <li>When you "complete" the assignment.</li> <li>You "complete" your assignment by working your whole shift on assignment.</li> </ul> <p>2 - Reassigned:</p> <ul style="list-style-type: none"> <li>You missed the PC boat and there are no eligible alternates</li> <li>Personal reasons approved by your Supervisor</li> <li>The site is closed to fishing</li> <li>No boats going out due to blown-out conditions</li> <li>You get sick or injured during the assignment</li> <li>The situation is unsafe or unhealthy</li> </ul> <p>6 - Cancelled:</p> <ul style="list-style-type: none"> <li>Supervisor notifies you that the assignment cannot be scheduled again or transferred to another sampler before the end of the month.</li> </ul>
<p>Q. What if I have a PC assignment and learn that no boats are going out at the assigned or alternate sites due to bad weather? A. Enter "2" (reassigned) for assignment disposition. Describe the situation under "comment".</p>		
ODO End	Optional Odometer reading for end of trip	Miles
ODO Start	Optional Odometer reading for start of trip	Miles
Mileage	Compute the Miles you drove to the nearest tenth mile for the day that are "payable" sampling miles. See instructions for "Travel Hours" for the definition of "payable" travel. For samplers using an agency car, only record miles claimed as "sampling related" and exclude miles driven to meetings, repair shop, motor pool return, etc.	Miles
<p>Q. Do I include miles driven from my house, or what? A. Miles are from 'workstation' to the site(s) and back. Your workstation is usually the closest ocean access from your home or an office.</p>		
Expenses	Dollar amount of your expenses that pertain to that assignment. Do not include mileage expense, it is calculated from the mileage rate. Include a brief explanation in the comments section. You	\$ amount


The Assignment Summary Form (ASF)

FIELD	INSTRUCTIONS	CODES AND FORMATS
	may need to record this for a day with no sampling. Include a brief explanation in the comments section.	
Travel Hours	<p>Enter the time spent traveling from your "workstation" to and from the sampling sites, as well as between alternate sites. Your "workstation" is the nearest sampling site to your home. Do not include any travel time, which is considered non-payable commute miles, i.e. travel between your home and your 'workstation'.</p>	<p>Decimal hours to tenth hours, i.e. 6.5 for six hours and 30 minutes.</p> 
<p>Q. What is an alternate site? A. An alternate site is a site other than the assigned site where sampling may take place in BB or PC mode. To be valid, the alternate site must have the assigned mode present at some time (though not necessarily the day you visit).</p>		
Sampling Hours	<p>Enter the elapsed time between arrival time and departure time to the nearest tenth of an hour (0.1). Time spent driving between access points within a site is included. Do not include time traveling to or from the site. A separate row must be used for each site visit. If you drive by a site without stopping because there is no effort, use the same start and end time, and enter "0" for hours on site. Do not include time spent on site checks.</p>	<p>To nearest tenth hours Example: 8:05 am to 10:40 am = 2 hrs 35 min., = 2.6 hours</p> <p>Use the conversion chart provided on the form. Sampling must add up to the sum of the "HRS" for each site or the form cannot be processed.</p>
<p>Q. What's the difference between a site and an access point? A. A site is a designated area where angling takes place. An access point is an area within a site where anglers have access to fishing. A site may or may not have various access points. For example, a boat ramp may be designated as a site and have only one access point, the ramp. A long stretch of beach, on the other hand, may be designated as a single site, but within the site are various parking areas, each an access point.</p>		
Edit Hours	Extra hours spent editing forms at home or office. You are expected to edit your forms during slack time between interviews; however, occasions may arise when you may require more time	To nearest tenth hours
<p>Q. Do I include editing time between interviews here? A. No, you are expected to edit your forms during slack time between interviews, which is counted as sampling time. However; occasions may arise when you may end an assignment with some forms left unedited or need time to complete comments on your assignment summary. These forms may be edited at home or office later in the day or during your next assignment.</p>		
Non-Assn	Non-sampling hours. (pressure	To nearest tenth hours

# CRFS Sampler Manual

FIELD	INSTRUCTIONS	CODES AND FORMATS
Hours	checks, fish quizzes, etc)	
<p>Q. Can I claim hours not related to CRFS?</p> <p>A. You are not authorized to claim any hours not related to or specified by the CRFS data collection. Any time spent on non-CRFS tasks will not be paid by CRFS.</p> <p>Q. What if my Supervisor assigns unrelated work that is funded from another (non-CRFS) source?</p> <p>A. If you are assigned work that is not related to CRFS, do not record any of those hours on your CRFS ASF. Doing so would cause an over-estimate of project expenses and inflate the estimated cost per angler form for your state or subregion.</p>		
Leave Hours	Hours taken for time off on the day of your assignment, such as sick leave and vacation.	To nearest tenth hours
Total Hours	Sum of items items 13-17	
<b>SITE RECORDS</b>		
Site Name	Name of this site as listed from your schedule, site list or reference maps. The name is recorded from your schedule. The Site Name and Site Code must match.	"Big city ramp"
Site Comment	Record any unusual circumstances at this site	"Bonus angler was in a kayak"
County	Record the 3-digit county code	1=Alameda 111=Ventura Leading zeroes are not required.
Site	Record the numeric site code corresponding to the site name.	"400"
<p>Q. How do I code site 41400?</p> <p>A. Your Supervisor has omitted the '-' between the county (41) and site (400).</p> <p>Q. What if an angler fished someplace else from shore, do I add another site visit?</p> <p>A. Code the site where fishing occurred. Hours sampling for that site can be zero and disposition will be 5=other.</p>		
Site Dispo	The disposition of this site that explains why you left the site. Site Disposition - The lowest valid disposition code should be used. Site disposition is recorded just prior to departure from the site. The Site Disposition is recorded for each site sampled and indicates the status of the effort there and the reason for leaving the site. The code needs to be an acceptable "Moving" to a different site disposition (0, 1, 4, 5, or 7).	<p>Use the lowest valid code:</p> <p>0 - Pressure Check:</p> <ul style="list-style-type: none"> <li>You have performed a count only. Includes vessel checks.</li> </ul> <p>1 - Done with cluster or PR1</p> <p>4 - Low Effort (PC assignments only):</p> <ul style="list-style-type: none"> <li>There are no anglers</li> <li>Anglers ineligible, you will come back later</li> </ul> <p>5 - Other:</p> <ul style="list-style-type: none"> <li>(MMPR2 or BB): Time spent at site (outside of assigned cluster) interviewing anglers who fished at that site.</li> <li>You can't ride the boat but got an alternate site for a</li> </ul>

# The Assignment Summary Form (ASF)

FIELD	INSTRUCTIONS	CODES AND FORMATS
		<p>boat</p> <ul style="list-style-type: none"> <li>PC boat did not go out due to mechanical problems so you go to an alternate</li> </ul> <p>7 - Roving (MMPR2 and BB):</p> <ul style="list-style-type: none"> <li>You are sampling a cluster of sites and you are moving between sites as scheduled.</li> </ul>
<p>Q. What if there are no anglers because of wind?</p> <p>A. Code the site disposition as 4 (low effort) and write a comment about the wind.</p> <p>Q. What if the PC boat broke down and I went to another site?</p> <p>A. Code the site disposition as 5 (other) and write a comment about the problem.</p>		
Hours	<p>Enter the total amount of time spent at the site. Do not include time traveling to or from the site.</p> <p>Include time spent driving between access points or waiting for boats or anglers within a site as sampling time. A separate line must be used when returning to the site after going to alternate sites.</p> <p>NOTE: This is not the same as 'boat hours' for the PSMFC time sheet accounted for when riding PC boats. Timesheet boat hours is the time actually on-board the boat, excluding any time on shore. Record this separately in the margin.</p>	<p>Record to nearest tenth hours: "1.2"</p> <p>Example the first site was sampled from 08:01 to 13:40 (13:40-08:01 = 05:39 = 5.6hrs.)</p> 
<p>Q. What if I drive by without stopping because of no effort?</p> <p>A. record your visit time with different arrival, start, stop and departure times (one minute apart) and record HRS on Site as zero.</p>		
Arrival	Time in 2400 format when you arrived at the site.	24 hour format: "0701" = 7:01am
Start	MMPR2 only. Time in 2400 format when you started monitoring x-effort for MMPR2 sampling.	"0710" = 7:10am Note: that ":" is not used.
<p>Q. Can I record the start and stop times with the same time?</p> <p>A. No, unique times are desired for all events, including interview times.</p>		
Stop	MMPR2 only. Time in 2400 format when you stopped monitoring x-effort for MMPR2 sampling.	"1355" = 1:55pm
<p>Q. What if I stop MM x-effort and then get some incomplete MM interviews?</p> <p>A. Code the interview times between the stop time and the departure time. It is expected that incompletes would be conducted at this time.</p>		
Departure	Time in 2400 format when you departed at the site.	"2359" = 11:59pm
MM Start Count	The count of MM anglers at the start time when the site cluster mode includes MM x-effort.	1= One MM angler on site. <blank>= not applicable

CRFS Sampler Manual

FIELD	INSTRUCTIONS	CODES AND FORMATS
MM Stop Count	The count of MM anglers at the stop time when the site cluster mode includes MM x-effort.	2= Two MM anglers on site. <blank>= not applicable
Q. What if there is more x-effort after the stop count when I am doing incomplete MM interviews? A. Do not record any x-effort after the 'departure' count if you remain on-site.		
PR2 Start Count	The count of PR2 trailers at the start time when the site cluster mode includes PR2 x-effort.	1= One PR2 trailer on site. <blank>= not applicable
Q. Are rental boats included in the counts? A. Yes, if the rental boats are part of the site, count empty slips (ask the rental agent) as boats out fishing. Q. Do I adjust the PR2 start count to account for boats without trailers? A. No, that is accounted for on the Angler Form by the question: "Trailer in count area?" Don't confuse this with the PR1 survey that does not ask that question.		
PR2 Stop Count	The count of PR2 trailers at the stop time when the site cluster mode includes PR2 x-effort.	2= Two PR2 trailers on site. <blank>= not applicable
Q. Do I count the personal watercraft (PWC) trailers? A. No, do not count personal watercraft trailers, roof top racks, stored trailers or truck bed boat carriers. Just count regular trailers. Q. What do I code for PR2 counts when I am on a MMPR2 assignment and sampling at a MM cluster site? A. Leave it blank since PR2 is not-applicable. Do not code 'zero'.		
Status 1-2 CRFS Boats	This is a summary of your successful interviews. For PR1 this is the number of CRFS boat records. For all other modes, this is the number of status 1 and 2 interviews. You may leave boxes blank if they are zero. This includes opportunistic PC and BB interviews that are not special fishery forms.	1= One good angler form or one CRFS boat. Blank='0' Ok
Q. Do I include the special fishery angler forms here? A. No, They all go under special fishery.		
Status 0 NF Boats	This is the number of status zero angler forms OR it is the number of NF boats on the PR1 forms. Exclude all Special Fishery forms and bad anglers here.	1=One status zero angler form or one NF boat on the PR1 forms. Blank='0' Ok
Q. Do I add counts of 'bad anglers' here? A. No. There are no counts of 'bad anglers' on this report. Q. What is a status zero form? A. A status zero form is not for an angler. It's a form used to report x-effort or 'bad anglers' (refusals & language barrier) when no angler interviews (in that mode) are present with a time stamp falling within 15 minutes. Q. Since NF boats are counted for PR1 sampling, should I also count NF boats or ineligible anglers when using the Angler Form? A. No. We don't need counts of ineligible anglers or NF boats with the Angler Form, because there is no adjustment for NF outside of the PR1 survey.		
Special Fishery Forms	Special Fishery Codes are used to flag angler forms that have a special circumstance. Code the	T = Angler forms from tournament participants. Excluding PC mode

The Assignment Summary Form (ASF)

FIELD	INSTRUCTIONS	CODES AND FORMATS
	letter code of the special fishery at the top of the column if it is not a 'B' or 'C' form. Include forms of all status (1-2).	B = MM or PR2 interviews taken outside of assigned cluster site mode (not monitoring their x-effort).  C = Angler forms from PC crew persons.  P=Private Access PR Anglers who departed from a slip
Q. What if there's a fishing tournament happening at a site? A. If a site turns out to be the official station for a tournament, you should interview at the site and code them with Special Fishery 'T'. However, PC boats are never coded with SFC=T even if they participate in a tournament.		
Estimated Anglers	The sum of 1) Eligible anglers not interviewed (skipped or missed) 2) Anglers interviewed 3) Uninterviewed anglers remaining at the site when you leave. An approximation is acceptable.	<b>Do not leave blank:</b> 1= One angler N=Anglers fishing in that mode <u>not possible</u> . 0=No anglers were present in that mode /=Forgot or unable to check number of anglers
Q. How can I calculate the number of PR anglers that are still out fishing? A. This can be calculated using the number of remaining trailers and the average number of anglers per boat you observed while sampling that day. For example: You encounter 10 boats (6 boats were fishing, 2 were pleasure cruising, 1 was crabbing, 1 was whale watching). There were 16 eligible anglers. So, divide 16 anglers by 10 boats = 1.6 anglers per boat. You counted 12 trailers remaining in the parking lot when you leave, so you multiply 1.6 anglers per boat by the 12 trailers and get 19 remaining anglers. You can use an average number of anglers per boat from previous days or, if you have no experience with an average number of anglers per boat at the site, than use two anglers per fishing boat—but do not include non-fishing boats, crabbing boats, freshwater boats, boats fishing outside of U.S. waters, etc.) Q. How do I calculate the total number of PC anglers? A. Total anglers should be the number of anglers reported at the landing office(s) for all PC boats that went out fishing, or estimate as above for PC boats out on trips.		
Estimated Boats	Record the total number 'fishing' boats for time you were there by major boat mode. For PR, also estimate the number of remaining boats represented by 'fishing' trailers at the site.	2=One boat N=Boats fishing in that mode <u>not possible</u> . 0=No boats were present in that mode /=Forgot or unable to check number of boats
Q. What is the definition of major mode? A. One of the four main modes: MM, BB, PC and PR, used to select assignments and estimate trips in the CRFS. This is known statistically as a "collapsed mode" since it may include multiple modes. For example MM is composed of: <ul style="list-style-type: none"> <li>• pier and dock</li> <li>• jetty and breakwater</li> <li>• bridge and causeway</li> <li>• other structure;</li> </ul> While PR is composed of just "private and rental boats" since we do not have separate modes for private boats and rental boats.		

FIELD	INSTRUCTIONS	CODES AND FORMATS
FOOTER - PR1 TOTALS		
CRFS Boats	Total number of CRFS boats sampled on all pages	Sum of 'CRFS' from each page
Total Boats	Total number of boats on all pages	Sum of 'BOATS' from each page
Total Anglers	Total number of anglers sampled on all pages	Sum of 'ANGS' from each page
Salmon Boats	Total number of boats targeting salmon sampled on all pages	Sum of 'SALMON BOATS' from each page <blank> if non-applicable
Salmon Anglers	Total number of anglers from boats targeting salmon sampled on all pages	Sum of 'SALM ANG' from each page <blank> if non-applicable
Kings Kept	Total number of Chinook salmon 'observed landed' from boats targeting salmon sampled on all pages	Sum of 'KING KEPT' from each page <blank> if non-applicable
Coho Kept	Total number of Coho salmon 'observed landed' from boats targeting salmon sampled on all pages	Sum of 'COHO KEPT' from each page <blank> if non-applicable
Kings Released	Total number of Chinook salmon 'unavailable dead + alive' from boats targeting salmon sampled on all pages	Sum of 'KING RELS' from each page <blank> if non-applicable
Cohos Released	Total number of Coho salmon 'unavailable dead + alive' from boats targeting salmon sampled on all pages	Sum of 'COHO RELS' from each page <blank> if non-applicable
Tag Count	Total number of salmon tags issued including tags without heads.	Sum of 'TAG COUNT' from each page <blank> if non-applicable
Seal Take	Total number of salmon lost to seals or sea lions.	Sum of <b>salmon</b> 'SEAL TAKE' from each page <blank> if non-applicable
Missed Boats	Total number 'missed boats' counted on all pages	Sum of 'MSD BOTS' from each page
Off Site	For salmon areas, the total number 'missed boats' returning to another site counted on all pages	Sum of 'OFF SITE' from each page <blank> if non-applicable

### ASF Coding Tips

The following coding tips and examples address the most common types of errors on the Assignment Summary Form. The most common errors fall into; 1) items left blank or not blank inappropriately, 2) mathematical errors and 3) incorrect assignment procedures followed.

### Specific Editing Checks

- MM interviews obtained during a "PR2" target mode (and vice versa) will be counted as SFC B = 'bonus' and entered under the "special fishery B" column on the ASF.
- Status "0" forms are entered solely for the purpose of obtaining X-effort or 'bad angler' counts (with the 15 minute rule, see MMPR2 methods).
- BB assignments are disposition 7 = 'roving' until the last site visit, which is 1 = 'complete'.
- MMPR2 assignments are also site disposition 7 = 'roving', until the last site visit which is 1 = 'complete'.
- BB and PC interviews may be obtained during MMPR2 and PR1 assignments and are NOT SFC B. = 'bonus' (they are usable opportunistic interviews)
- Check the 'MMPR2 CLUS ONLY' column checkboxes MM and/or PR2 based on the target mode(s) assigned at the site. The target modes for each site in the cluster are listed in the MMPR2 site list for the current month. Only the listed target modes will have their effort (x-effort) monitored and trips intercepted for catch during sampling.

# Example Forms

**CODING**  
**"PRESSURE**  
**CHECKS": IF**  
 (FOR WHATEVER  
 REASON) YOU VISIT A  
 SITE (OR SITES) AND  
 ARE NOT ACTUALLY ON  
 AN ASSIGNMENT, YOU  
 CAN RECORD THE  
 FISHING EFFORT ON  
 AN ASSIGNMENT  
 SUMMARY FORM.

## CRFS ASSIGNMENT SUMMARY FORM

# Assn

SAMPLER NAME	DATE	ASSN ID	ASSN MODE	CLUSTER	HOURS
Joe Sampler	20070101				0.5
COMMENT	Did a drive-by of some sites. 0.1hr = 59-3 mins 0.1hr = 4-9 mins 0.2hr = 6-6 mins 0.4hr = 22-27 mins 0.5hr = 28-33 mins 0.6hr = 34-39 mins 0.7hr = 40-45 mins 0.8hr = 46-51 mins 0.9hr = 52-57 mins				

Assignment dispositions: 1=Complete, 2=Reassigned, 6=Cancelled

☐ Edited By:

SITE NAME / COMMENT		TIME		MMPR2 CLUS ONLY		ANG FORM COUNTS / PRI BOATS		SPECIAL FISHERY		TOT EFFORT	
1	AAA Landing	CNTY 59	ARRV 0800	MM		STATUS 12	CRFS BOATS	STATUS 0	INF BOATS	ESTIMATED ANGLERS	EST. FISH BOATS
		SITE 14	STRT	BB	x - EFFORT						
		DISPO 0	STOP	PC	<input type="checkbox"/> MM <input type="checkbox"/> PR						
	Drove by on way to marina	HRS 0.5	DEPR 0830	PR							
2	White Knuckle SF	CNTY 59	ARRV 1030	MM							
		SITE 16	STRT	BB	x - EFFORT						
		DISPO 0	STOP	PC	<input type="checkbox"/> MM <input type="checkbox"/> PR						
	Stopped by on way to lab.	HRS 0.5	DEPR 1100	PR							

## The Assignment Summary Form (ASF)

DATE SHOULD ALWAYS BE CODED WITH YEAR FIRST, FOLLOWED BY MONTH AND DAY. DO NOT USE DASHES OR SLASHES

**MMPR2**

### CRFS ASSIGNMENT SUMMARY FORM

ALTHOUGH THE TYPE OF SURVEY IS MMPR2, THIS SUBSITE HAS A "TARGET" MODE OF MM MODE ONLY (PR2 IS NOT SAMPLED HERE).

WHEN VISITING MMPR2 CLUSTER SITES, GIVE EACH SITE A DISPOSITION OF 7 (ROVING) EXCEPT FOR THE LAST SITE VISITED (THE ONE WHERE YOU DETERMINE THAT THE ASSIGNMENT HAS BEEN COMPLETED).

CODE THAT SITE AS DISPOSITION 1 (COMPLETE).

DISPOSITION 5 (INTERVIEW FROM SITE OUT OF ASSIGNED CLUSTER).

Site dispositions:

0 = Pressure estimate only, 1 = Assignment completed,

5 = interviews from site out of assigned cluster, 7 = Roving (MMPR2)

THE 3 FORM TYPES (STATUS 1-2, STATUS 0, AND SEQ) SHOULD ALWAYS BE LISTED "SEPARATELY" ON THE ASSIGNMENT ID FORM. NEVER INCLUDE STATUS 0 OR SFC FORMS WITH THE COUNT OF STATUS 1-2.

SAMPLING HOURS ARE A SUM OF ALL HOURS FROM SITES VISITED WITH DISPOSITION OF 7 OR 5.

**SFC "WRITE-IN" BOX** CAN BE USED FOR "TOURNAMENT", "PRIVATE" OR ANY FUTURE SFC CODES.

**"/"** MEANS "TOTAL NOT DETERMINED"

**"N"** MEANS "MODE NOT PRESENT AT SITE" (IN THIS CASE, BB).

**OPPORTUNISTIC:** ANY BB OR PC INTERVIEWS OBTAINED DURING AN MM, PR2 OR MMPR2 ASSIGNMENT. THESE ARE COUNTED ALONG WITH REGULAR STATUS 1 AND 2.

**BONUS (SFC "B"):** INTERVIEWS FROM ANGLERS WHO FISHED AT SITE "A" WHILE YOU WERE SAMPLING AT SITE "B" ARE CONSIDERED "BONUS". THE ARRIVAL AND DEPARTURE TIME SHOULD BE EQUAL TO THE TIME OF THE FIRST ANGLER INTERVIEWED (14:10) WITH HOURS-ON-SITE AS ZERO.

WHILE IT IS TRUE THAT SFC FORMS ALSO HAVE A STATUS OF 1 OR 2, THEY FALL OUTSIDE THE MAIN SURVEY IN SUCH A WAY THAT THEY MUST BE COUNTED SEPARATELY.

SAMPLER NAME	DATE	ASSN ID	ASSN MODE	CLUSTER	HOURS
Joe Sampler	20070101				0.5
COMMENT	Most of the anglers I encountered today were drunk and hostile.				
1	AAA Landing	CNTY 59	ARRV 0800	MM	
		SITE 14	STRT	BB	x - EFFORT
		DISPO 0	STOP	PC	<input type="checkbox"/> MM <input type="checkbox"/> PR
	Drove by on way to marina	HRS 0.5	DEPR 0830	PR	
2	White Knuckle SF	CNTY 59	ARRV 1030	MM	
		SITE 16	STRT	BB	x - EFFORT
		DISPO 0	STOP	PC	<input type="checkbox"/> MM <input type="checkbox"/> PR
	Stopped by on way to lab.	HRS 0.5	DEPR 1100	PR	

DATE SHOULD ALWAYS BE CODED WITH YEAR FIRST, FOLLOWED BY MONTH AND DAY. DO NOT USE DASHES OR SLASHES

**MMPR2**

### CRFS ASSIGNMENT SUMMARY FORM

ALTHOUGH THE TYPE OF SURVEY IS MMPR2, THIS SUBSITE HAS A "TARGET" MODE OF MM MODE ONLY (PR2 IS NOT SAMPLED HERE).

WHEN VISITING MMPR2 CLUSTER SITES, GIVE EACH SITE A DISPOSITION OF 7 (ROVING) EXCEPT FOR THE LAST SITE VISITED (THE ONE WHERE YOU DETERMINE THAT THE ASSIGNMENT HAS BEEN COMPLETED).

CODE THAT SITE AS DISPOSITION 1 (COMPLETE).

DISPOSITION 5 (INTERVIEW FROM SITE OUT OF ASSIGNED CLUSTER).

Site dispositions:

0 = Pressure estimate only, 1 = Assignment completed,

5 = interviews from site out of assigned cluster, 7 = Roving (MMPR2)

THE 3 FORM TYPES (STATUS 1-2, STATUS 0, AND SEQ) SHOULD ALWAYS BE LISTED "SEPARATELY" ON THE ASSIGNMENT ID FORM. NEVER INCLUDE STATUS 0 OR SFC FORMS WITH THE COUNT OF STATUS 1-2.

SAMPLING HOURS ARE A SUM OF ALL HOURS FROM SITES VISITED WITH DISPOSITION OF 7 OR 5.

**SFC "WRITE-IN" BOX** CAN BE USED FOR "TOURNAMENT", "PRIVATE" OR ANY FUTURE SFC CODES.

**"/"** MEANS "TOTAL NOT DETERMINED"

**"N"** MEANS "MODE NOT PRESENT AT SITE" (IN THIS CASE, BB).

**OPPORTUNISTIC:** ANY BB OR PC INTERVIEWS OBTAINED DURING AN MM, PR2 OR MMPR2 ASSIGNMENT. THESE ARE COUNTED ALONG WITH REGULAR STATUS 1 AND 2.

**BONUS (SFC "B"):** INTERVIEWS FROM ANGLERS WHO FISHED AT SITE "A" WHILE YOU WERE SAMPLING AT SITE "B" ARE CONSIDERED "BONUS". THE ARRIVAL AND DEPARTURE TIME SHOULD BE EQUAL TO THE TIME OF THE FIRST ANGLER INTERVIEWED (14:10) WITH HOURS-ON-SITE AS ZERO.

WHILE IT IS TRUE THAT SFC FORMS ALSO HAVE A STATUS OF 1 OR 2, THEY FALL OUTSIDE THE MAIN SURVEY IN SUCH A WAY THAT THEY MUST BE COUNTED SEPARATELY.

BB

**BONUS (SFC "B"):** ANOTHER TYPE OF BONUS INTERVIEW WOULD CONSIST OF "ANY" INTERVIEW OF A MM OR PR2 MODE ANGLER WHILE ON A BEACH/BANK MODE ASSIGNMENT.

**CRFS ASSIGNMENT SUMMARY FORM**

ASSN #	SAMPLER NAME	sampler ID	DATE	ASSN ID	ASSN MODE	CLUSTER	HOURS	TRAVEL	SAMPLING	EDIT	NON-ASSN	LEAVE	TOTAL
1	Joe Sampler	101	20070101	011001	BB	BB15	1.2	TRAVEL	6.2	0.5	0	0	7.9
COMMENT	Everyone was very cooperative. Interviewed 3 kayakers from Ricardo passing through Exxon Beach while on their way back to the kayak trailer. Interviewed them.												
Assignment dispositions: 1=Complete, 2=Reassigned, 6=Cancelled													
Edited By: _____													
SITE NAME / COMMENT													
1	Exxon Beach	CNTY 37	ARRV 0800	MM									
	Oil spill didn't spoil these people's fun	SITE 11	STRT	BB	x - EFFORT	15							
		DISPO 7	STOP	PC	<input type="checkbox"/> MM <input type="checkbox"/> PR								
		HRS 2	DEPR 1000	PR									
2	Ricardo Ramp	CNTY 37	ARRV 0905	MM									
	3 PR2 anglers passed by on way to get trailer	SITE 12	STRT	BB	x - EFFORT								
		DISPO 5	STOP	PC	<input type="checkbox"/> MM <input type="checkbox"/> PR								
		HRS 0	DEPR 0905	PR									
3	Gull Beach & Pier	CNTY 37	ARRV 1035	MM									
	Dead whale on beach. Many gulls.	SITE 12	STRT	BB	x - EFFORT	6							
		DISPO 7	STOP	PC	<input type="checkbox"/> MM <input type="checkbox"/> PR								
		HRS 2.5	DEPR 1300	PR									
4	Long Beach	CNTY 37	ARRV 1330	MM									
	Very long beach. Very few anglers.	SITE 13	STRT	BB	x - EFFORT	3							
		DISPO 1	STOP	PC	<input type="checkbox"/> MM <input type="checkbox"/> PR								
		HRS 1.7	DEPR 1510	PR									

FORM COUNTS

Site dispositions:

0 = Pressure estimate only, 1 = Assignment completed,  
5 = interviews from site out of assigned cluster, 7 = Roving (BB)

CREW

(SFC "C"): IF

CREW MEMBERS FISHED AND ARE

INTERVIEWED, THEIR INTERVIEWS ARE LOGGED IN THIS COLUMN.

PC EFFORT:

PC TOTAL EFFORT (PRESSURE) DIFFERS FROM MM, BB AND PR2 EFFORT ESTIMATES IN THAT, WHILE THOSE MODES REPRESENT THE TOTAL NUMBER OF BOATS AND ANGLERS FISHING WITHIN A SPECIFIC TIME FRAME (THE START AND DEPARTURE TIME), PC REPRESENTS TOTAL EFFORT FOR THE "ENTIRE" DAY.

**ALTERNATE SITE:** IF FOR SOME REASON YOU ARE UNABLE TO SAMPLE THE ASSIGNED PC SITE, IT STILL NEEDS TO BE LISTED ON ROW 1 OF THE ASF (WITH EXPLANATION).

PC

## CRFS ASSIGNMENT SUMMARY FORM

ASSN #	SAMPLER NAME	sampler ID	DATE	ASSN ID	ASSN MODE	CLUSTER	HOURS	TRAVEL	SAMPLING	EDIT	NON-ASSN	LEAVE	TOTAL
1	Joe Sampler	101	20070101	011001	PC	PC	1	TRAVEL	4.7	0.5	0	0	6.4
COMMENT	Most of the anglers I encountered today were drunk and hostile												
Assignment dispositions: 1=Complete, 2=Reassigned, 6=Cancelled													
Edited By: _____													
SITE NAME / COMMENT													
1	AAA Landing	CNTY 59	ARRV 0800	MM									
	Missed boat.	SITE 14	STRT	BB	x - EFFORT								
	Went to White Knuckle instead.	DISPO 5	STOP	PC	<input type="checkbox"/> MM <input type="checkbox"/> PR								
		HRS 0	DEPR 0800	PR									
2	White Knuckle SF	CNTY 59	ARRV 1030	MM									
	Conditions very rough. Not many weights obtained	SITE 16	STRT	BB	x - EFFORT								
		DISPO 1	STOP	PC	<input type="checkbox"/> MM <input type="checkbox"/> PR								
		HRS 4.7	DEPR 1510	PR									

FORM COUNTS

Site dispositions:

0 = Effort estimate only, 1 = Assignment completed, 4 = Low Effort  
5 = Other reason (should be explained in comments section)



## GENERAL ON-SITE PROCEDURES

While it varies for each Sampler and each angler or boat being interviewed, an interview and catch inspection require approximately five minutes. At busy sites, you should roughly determine the rate of interviews that can be conducted, and systematically sample the anglers or boats. For example, if four interviews can be conducted in the time anglers will be present with 20 anglers present, every fifth angler should be interviewed. Under no conditions should the Sampler just approach the more friendly anglers, anglers with important catch or sample at a fish cleaning station (successful anglers only). The sample of anglers should be random or systematic (see below) and accurately represent angler activity and catch rates of all species in the assigned mode on the date of your assignment.

The on-site procedures differ somewhat for each mode of fishing sampled and local site conditions and structure. Due to regional differences in terms, such as fish slang names, some local definitions are also necessary. Your Supervisor will supply you with a list of local definitions.



### No Anglers

Your management of the assignment differs somewhat by survey when you arrive on-site and discover that fishing effort is zero at the assigned site.

### No Anglers in PC and BB Modes

If you go to a PC or BB site as scheduled and no anglers are observed (or boat launchings or trailers at boat sites) in the assigned mode, you may go to unlimited alternate sites with effort in the assigned mode (except for BB clusters where you will go to all sites in the cluster and for PC sites where the boat trip type or water body area has also been assigned by your Supervisor). If no effort in the assigned mode is found at the primary site and alternate sites after two hours and you don't expect at least one interview per hour from the covered sites in the assigned mode, terminate the assignment. Sampling may also be undertaken in the other mode (MM or PC), at the visited sites.

### No Anglers in PR1 Mode

If you go to a PR1 site and no anglers are present (no trailers) and after 2 hours no effort develops, the assignment might be considered complete. However; if the two hours were up before the time of expected peak activity, the Sampler should spend an additional 2 hours (for a maximum of four hours) waiting for effort to develop. A sample day will, on average, represent 4 days of the month (25%). See the coding instructions for coding a zero CRFS boat.

## General On-Site Procedures

### No Anglers in MMPR2 Mode

If you go on an MMPR2 assignment and no anglers are present at the first sub-site you may move to the next site until effort is found or 2 hours of on-site time have passed. If no effort was found at all sub-sites after 2 hours of on-site time the assignment might be considered complete. However; if the two hours were up before the time of expected peak activity, the Sampler should spend an additional 2 hours (for a maximum of four hours) waiting for effort to develop at the most likely sub-site in the cluster. If no effort seems likely and you complete the assignment with no anglers counted the cluster will receive zero effort for that day. A zero will on average represent 10 days of the month for that cluster.

### Finishing a MMPR2 Assignment Early

You may continue to move around the sites in a MMPR2 site cluster while interviewing at least 1 angler per hour. If possible, perform pressure checks and vessel checks at the nearby site(s) as well as at sites between your cluster sites and your route to or from home or office. Try not to waste your travel time if you have completed the assignment early and will be driving past a number of sites. During assignments that are expected to have low productivity your Supervisor may instruct you to perform other tasks during or after the assignment, such as editing forms in the office, checking on new fishing sites, etc.

### Canvassing

It is possible to build rapport with the anglers prior to conducting any interviews and determine how long they will be fishing. Anglers who have had the opportunity to meet the Sampler and discuss the survey will tend to be more cooperative when asked for an interview at the completion of their fishing trip. The canvassing should be very informal. The conversation might begin with "Catch anything?" or "How's the fishing?" You should make it known that the survey is in no way connected with the enforcement of fishing regulations and the interview is voluntary.



### Screening for Eligibility

The purpose of the screening is to introduce the survey and determine whether an angler is eligible. In California we normally sample only fin-fishing trips, but sometimes we may sample other types of trips such as shellfish as a "special fishery". Your Supervisor will provide this information for you should this occur.

An eligible angler is one who:

- has been fishing (gear in the water) in saltwater (downstream of any saltwater cutoff)
- has been actively fishing for or caught finfish (or other species in some years),

- is a recreational angler (not commercial angler or crew-member).
- has completed his/her fishing trip in the assigned mode of fishing for the day (*except shore (MM and BB) anglers who must be at least half done*)

An angler does **not** have to have caught fish to be eligible for an interview.

Commercial anglers who say they are sportfishing may be eligible if they are using a California sport fishing license.



### Screening Divers

In addition to the hook and line anglers, consider all divers. If divers carry a spear gun with them, they can be interviewed as 'anglers'. If they speared a fish or intended to spear a fish (but none were seen) they are considered eligible anglers. Divers entering the water from shore to fish are considered BB anglers.

Shore based divers who use a flotation device to 'kick out' with fins are also considered BB based. However, divers using flotation from which they 'paddle out' or are towed by a motorized vessel from shore are PR anglers. Paddle based PR flotation includes kayaks, paddleboards and pontoon boats with 'oars'.

### Probe for Multiple Trips

Anglers who are still fishing, but have completed fishing in a different mode are eligible for an interview in that mode. Completed fishing means they will not be fishing again in that mode today.

Q. The sampler has a family boat from a campground that takes out wife and two children to fish, they all fish, one child gets sick and the father drops off the wife and sick child at the dock and picks up the uncle and goes back out to fish. They come back and drop off the second child and go out again to fish. They come back from lunch and rest. Later that afternoon, the father and uncle go out and fish again. How many forms do you fill out?  
A. One for each complete angler's trip, which would be a maximum of five anglers.

Ask; "Is this the only place that you have fished today?" If they say they fished somewhere else earlier in the day, ask if it was in on another beach (pier, pr, etc.) If yes, and in the same mode, add the total hours fished in both places. If they fished in another mode earlier, (e.g. they are being interviewed at a beach and say they fished earlier at a pier), you may make two forms for each person, separating the hours and catch.



### Saltwater Cutoff Points

This is a marine survey and it is necessary to establish saltwater cutoff points at some locations. It is possible to interview in the tidal portion of a river. It will be mandatory to screen anglers to see if their fishing was done above or below these points.

### General On-Site Procedures

If any of their fishing was done below these points, they become eligible anglers. If all of their fishing was done above these points, they are ineligible for the interview. If you are recording catch, only record the catch caught below these points. Some areas where anglers in freshwater need to be probed for saltwater fishing are where US 101 crosses estuaries and near rivers entering San Francisco Bay.

Be sure and screen any boats that may have fished near these areas to see where their fishing was done. They may not be eligible for the surveys.

County	River	Saltwater Cutoff Point
Del Norte	Smith R.	1/4 way between mouth and 101
Humboldt	Mad R.	1/4 way between mouth and 101
	Eel R.	Upper end Cockrobin Island
	Redwood Creek	1/4 way between mouth and 101
Mendocino	Ten Mile R.	Old dock, 100 yds. up from 101
	Noyo R.	End of Dolphin Cove Marina
	Big River	Mid - 2nd turn upstream
	Albion R.	Upper dock
	Navaro R.	Hwy 1 Bridge
Sonoma	Petaluma R.	Highway 37 Bridge
	Coast rivers	Highway 1 bridges
Napa	Napa River	Highway 37 Bridge
Solano	Sacramento R.	Carquinez Bridge
Contra Costa	Sacramento R.	Carquinez Bridge
San Mateo	Coast rivers	Highway 1 bridges
Monterey	Elkhorn Slough	Highway 1 bridge
Los Angeles	San Gabriel River	Pacific Cosat Highway bridge

Occasionally you might interview an angler who states he has been fishing in "brackish" water. If the location cannot be determined, ask, "If you had to pick either salt or fresh water, what would you pick for most of your fishing today?" If he chooses fresh water, you should stop the interview as he becomes an ineligible angler. Occasionally an angler will report saltwater fishing at a freshwater location, in this case complete the interview and write a comment on the form.

### Definition of an angler trip

For purposes of an angler interview, an angler trip is one angler fishing in one major mode in one waking day, as opposed to calendar day. Anglers fishing past midnight into the morning would be considered one trip. For anglers who fish more than 24 hours without sleep, only consider the most recent 24 hour period as the trip. For anglers who fished for consecutive days, each waking day is a separate "trip" and you will sample only the most recent "trip" or angler fishing day. If the angler fished in more than one

mode, consider only the most recent fished mode. If the multi-mode anglers cannot separate the catch by mode, do not interview that angler.



### **“Random” Selection**

Surveys like this one require sampling of boats, anglers and their catch in a “random” manner in an attempt to represent what is happening overall. Many systematic procedures have been developed which get close to a true “random” sample. Without any way to truly randomize angler and Sampler activity you must use

the methods described here to get a “representative” sampling of anglers and fish. These methods described for anglers also apply to boats when sampling boats rather than anglers.

### **Angler Sub-sampling**

At busy MM, BB and PC sites, you will not be able to interview every eligible angler. As much as possible, systematic selection should hold for anglers as well. You should make every effort to insure that you are not picking just the friendlier looking angler, the anglers who have catch, men as opposed to women, adults as opposed to children, etc., etc. If they keep walking, walk with them during the interview. Try and get to the fish before they put it in their car.

Every eligible angler is just that -- eligible. They must be selected randomly by taking every  $n$ th angler when you are sub-sampling. Select a starting angler at random. Count the number of anglers you skipped for recording on the last interview of the assignment (see item 32 “eligible anglers not interviewed” in the item by item instructions).

### **Angler Groups**

Groups of anglers may be family members or friends who fished together. In most cases you will not interview all members of the group unless you are interviewing everyone who completes their fishing at that site or are sampling entire boats of anglers. Sub-sampling “by boat” may occur while sampling at busy Private rental boat sites (see below). Normally, the member or members of the group that end up being the “ $n$ th” angler are the only ones interviewed in the group. You should not interview only the anglers with catch while sub-sampling groups.

If the group has group catch, from which the angler that you interview cannot extract his own fish, record all of the group catch on this angler’s form and indicate only the number of anglers that contributed to the catch. You don’t necessarily interview the other anglers who contributed to the catch. You should not interview the other anglers in the group when sub-sampling every  $n$ th angler, unless the group is large enough that someone else in the group is the next  $n$ th angler. For MM, BB and PC we are attempting to sample individual anglers not clusters of anglers.

### **Fish Sub-sampling**

The procedures for weighing and measuring fish are fully explained below; however, some emphasis should be given to random selection. Whenever the sample has more species than will be measured, you should use one of the following procedures:

- (1) The Sampler should line up the fish according to size, calculate the sampling fraction,  $n$  (e.g. every third fish), and weigh and measure every  $n$ th fish. Select the starting fish at random and alternate the direction from the either largest or smallest end;
- (2) If there are too many fish to line up, or if the surroundings make that impossible, you should reach into the container and “randomly” select ten fish. At no time should you try to pick out the “average” fish or the largest and smallest fish -- that is not “random” selection.



### **Catch or Fishing Location**

The Location procedures gather information about the location of catch (or effort) of fishing of boats. Location of fishing is a necessary component of determining “essential fish habitat” as defined in the Sustainable Fisheries Act of 1996; SFA (amended Magnuson-Stevens Fishery Conservation and Management Act). The information is also being used by researchers to study areas where species of interest are being caught or not caught for purposes of protection or angler access refugia.

### **Essential fish habitat (EFH)**

EFH are those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity. The general distribution and geographic limits of EFH for each life history stage will be presented in the form of maps. Ultimately, these data will be incorporated into a geographic information system (GIS) to facilitate analysis and presentation. If scientific evidence suggests that particular fishing methods or gear types are adversely affecting the quantity or quality of habitat action may be taken. The most likely short term consequence would be the relocation of fishing effort. Overall, short-term economic losses may be compensated by future increases in catch levels and increased stability in the fishery.



### **Refugia**

Marine harvest refugia are being promoted worldwide as a viable option for resource managers to mitigate over fishing, but their effectiveness in fisheries management is not well understood and refugia concepts, especially as they relate to temperate marine systems are not well

tested. Collection of baseline data is required for harvest refugia proposals to be seriously considered. This basic information may be used in modeling the feasibility and effectiveness of hypothetical refugia designs.

## Latitude and Longitude

To communicate geographical locations a universal coordinate system, or worldwide grid, was devised. The grid is commonly used and is based on angular measure of a circle being 360 degrees. The Earth is nearly a sphere with the northern and southern hemispheres being separated at the Equator. The Equator has been designated as 0° (zero degrees) **latitude** and the north and south poles are 90°. The latitudes divide the earth into a stack of concentric disks that define north-south locations. The Prime Meridian is the location where the sphere of the earth is separated into eastern and western hemispheres and was arbitrarily set as 0° (zero degrees) **longitude** (at Greenwich, England) and 180° east or west is the International Date Line (at the middle of the Pacific Ocean between Asia and North America). The longitudes divide the earth into wedges that define east-west locations.

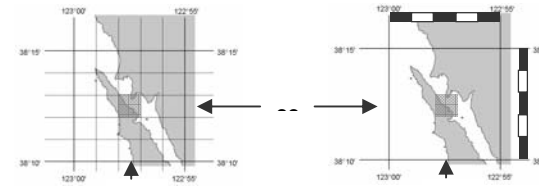
Any geographic location on Earth can be pinpointed on a map using the latitude-longitude grid system. The accuracy of the degree grid is increased by the use of minute and second subdivisions of which there are 60 of each. Working much like a clock, 30 minutes is half a degree and 30 seconds is half a minute. Since a degree is about 60 nautical miles or 70 statute miles, a minute is about 1 nautical mile or 1.1 statute miles and a second is about 100 feet. Closer to the poles, longitude lines narrow and the grid is not as square. In California, we can assume square grids for this study.

Differing resolution grids may be placed over maps depending on the needs of the map users. Detail is compromised with coverage of the map. At high accuracy, several maps would be required to cover an area such as Point Reyes National Seashore north of San Francisco Bay in California.

## One Minute Grid

In this project we will be working mainly at the minute level resolution (about a square nautical mile) for locations on coordinate maps. One minute grid maps have been developed for this purpose; however in some areas you may have to use a chart to determine the coordinates. These charts may have a larger than 1-minute grid with either tick marks or reference lines. Reference lines will be labeled on the map for reference for angler orientation. The individual minutes between the reference lines can be simply derived by counting up the tick marks or estimating the minutes beyond the lower numbered label. Beware that latitude and longitude numbers increase going up and to the left on charts.

## General On-Site Procedures



A box will be formed by the major grid from which the inner minor grid can be estimated or counted. For latitude, count northward from the lower line of the box adding one minute to the line label until just below the location. For longitude, count eastward from the left line of the box adding one minute to the line label until just to the right of the location.

## Angler use of Maps

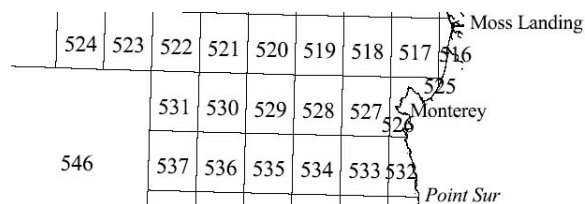
Perhaps the most difficult aspect of this study, from the standpoint of field conduct, is allowing the angler to use maps in order to identify open water locations. Anglers may not be able to provide their location for many reasons. Anglers may be...

- unaware of their location while fishing,
- unwilling to spend any time determining a location,
- unable to read maps or charts or
- unwilling to divulge a favorite fishing spot

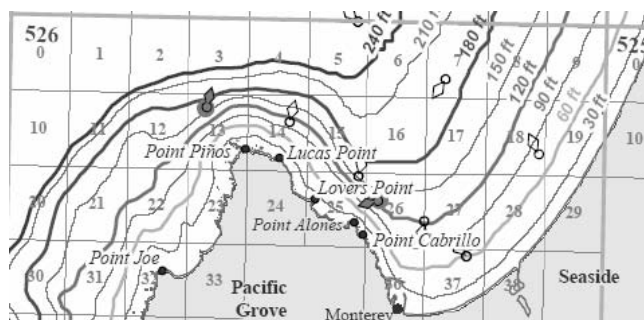
It will be up to the Sampler to attempt to overcome these problems by providing the angler the best information needed for a solution. The Sampler must be geographically oriented by becoming familiar with on-the-water and on-the-map landmarks so the angler can become oriented as well. The Sampler must be convincing and credible while explaining the importance of gathering this data. The Sampler must be a patient teacher of map reading skills. Any or all of these skills may be called into action by the Sampler while sampling anglers on a boat.

## CDFG Block and Box (microblock)

An alternative format for mapping coordinates is the block-box system which uses pre-defined numbers to indicate a location within one nautical mile. Each block is 10 by 10 miles with 100 boxes numbered 0-99 within each block. One box is approximately one square mile. Three digits are required for the block (BBB) and two digits for the box (bb). So each pre-defined box can be expressed with the BBB-bb format. Multiple boxes in a block can be expressed by adding more box codes; BBB-bb-bb. Inland marine waters have boxes numbered with three digits (bbb) starting at 100. Each box will be converted to latitude and longitude coordinates in the database. If all that is provided is the block (BBB) the coordinate will be the middle of the block with a size of 100 square miles, which is not very precise.



CDFG Fisheries Chart showing the 100 square mile CDFG blocks for the Monterey Area.



Example Block-Box map; the box West of Pt. Pinos is described as 526-13. Depth contours aid angler map navigation.

### Location Gathering Guidelines

Gathering location information differs primarily by type of boat sampling and fishing mode;

PR boats or anglers have two methods:

**PR1** – Catch locations by species or location of fishing effort. Entire boats only, but each species can have a different location.

**PR2** – Fishing location (with catch flagged) for entire trip. This is for individual anglers or groups of anglers with group catch.

**PC dockside** - Fishing location (with catch flagged) for entire trip. This is the same as PR2 location sampling. Crew may report a general location.

**PC on-board sampling** – Starting and ending fishing locations with time stamps and observations of catch kept and returned.

The best person on the boat to contact dockside about fishing locations will be the “pilot” of the vessel. Although everyone on a particular boat typically fishes at each location, this is not necessarily so. In addition, the pilot may not be aware of where the majority of the catch was taken or where individual anglers got their majority catches. This presents a major problem on more populated boats fishing a variety of locations.

Q. What do I say when an angler does not want to provide a location?

A. Explain that if they don't participate fishery managers will be uncertain how to protect the resource while providing for sport fishing. So it is just as likely this area would be closed to provide fishing opportunities elsewhere if they don't have your data.

### General On-Site Procedures

#### Definitions of Location



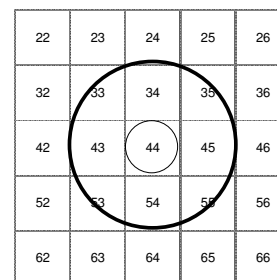
A location can be described as a single “point” or as a “box” in this study. A “line” is a third type of location that can describe an on-board fishing “drift” between two point locations. Since we use a coordinate system or two-dimensional “grid” to define a location, what could be casually described as a point is in reality a

square or circle of varying size. Location points are always described to the nearest minute of latitude and longitude and are seen as one minute circles or squares on a map with a point in the center where the east and west “minute” lines cross. A minute square is a large area of approximately a square mile. To get one minute accuracy you look for the nearest intersection of one minute lines on a coordinate map from where the activity occurred.

Another way to think of a location is to draw a circle around an area where the diameter of the circle has meaning. For example, a circle one-mile in diameter may best describe a location where 50% or more of an anglers catch was caught. You can think of “best describe” as being the diameter at which the angler estimates with 95% confidence will include the majority of the catch. Where the circle falls on the “grid” will determine the location coordinate and the size of the circle will determine the accuracy, i.e. number of minutes. See grid size item below.

#### Accuracy of Location Grid

Recording of a location can be seen as a trade off between getting an exact location for a fishing spot and including the majority of the catch. A less precise location covering a larger area may be used to encompass the majority of fished locations to form a “location cluster” that may exclude “unproductive” (minority of catch) fishing sites from a particular trip. However, on an individual basis you may discover that one or more anglers on the boat recalls a specific location for the majority of their catch, so, given adequate time, individual anglers should be given the opportunity to provide ‘catch’ locations in the PR2 survey. Coding all the anglers on a boat to a broad area does not provide much for our analysis.



#### The “Grid Size” Item

The grid size can be used as a way to indicate the extent or size in minutes of a location. In order to allow for different sizes the “grid size” factor has been used on the forms. If a location is more than one minute in diameter a grid size should be used. The grid size is the diameter around a box and is recorded in minutes. A grid size of “3” represents 3 minutes (3 nautical miles) in diameter or a 3-minute by 3-minute

area or 9-square minutes around the location. The location is recorded to the nearest 1-minute (or box) east and west. The grid size in minutes is recorded

with the latitude where seconds would normally go or after the box number with a dash (a 3 mile area around box 44 would be coded as 44-3).

#### *Location of Group Catch*

When boat anglers have inseparable catch, we have the perceived problem of having different individual angler locations for the same group of fish. This is not really a problem since the aggregate of the locations will better describe the extent of the area of catch than a single location. If only one location is used for the group, it should be a large enough area to include the catch locations for each member of the catch group. In this case, group consensus for the catch location would be an efficient goal. For the angler form, code the location on the first boat angler form and code the boat followers as 'same as first boat angler'.



#### **Open Water Fishing Sites**

One of the analyses of this study will be an attempt to produce a database of common fishing grounds shared by anglers which are either commonly referred to by name or are frequently visited. The definition of an open water fishing site will attempt to include the extent of the area covered, a locus or central point, site name and other yet to be determined site characteristics. The area and point data will be used by geographic information systems (GIS) to map and analyze angler catch and species data. This effort will evolve during the course of the study and may require the use of an additional form and map work to accomplish.

There is a possibility of being caught in the trap of pre-defining open water fishing areas by asking anglers to decide between areas shown on a map or given by name. This can be reworded as; "here are the 'hot spots' which one did you fish in?" This can be a big problem. The intent of this study is not to confirm preconceived fishing holes, but to statistically formulate fishing areas from individually acquired locations fished. Many previously 'known' fishing locations become "fished out" and may shift in location and extent along with fish availability. We want to be able to study this when it happens.

#### *State Site Code*

The "state site code" is a possible format for use which describes a pre-defined on-the-water site. The Supervisor may work to develop these fishing sites based on commonly known locations with constant extent and position. The site should be occasionally validated by anglers using unmarked charts to point out the site location and area while the Sampler checks the currently defined site boundaries. Site code tables will be maintained by each Supervisor with location information. The site code tables are important databases, which will be used in GIS applications along with the catch data. It is very important that only valid site codes be used. PSMFC will receive updated site code tables periodically, which will be read by the

#### *General On-Site Procedures*

data entry system for validation of site codes coded on the forms. Invalid site codes will generate a "coding error" which will be reported to the Supervisor for correction.



#### **Use of Code Lists**

Code lists are at the end of this manual. You Supervisor will add an addendum for your area which will list more common codes for your area as well as lists of the sites.

#### **Angler Residence Codes**

Residence codes are provided at the end of this manual. You will record the county of residence for California anglers, state of residence for out of state anglers and country for foreign anglers. If the angler does not know his county of residence but can give a city instead, you should write the city on the county line of the form and check the city box. It will be looked up during data entry and coded to county.

#### **Site Codes**

County and site numeric codes for the sites will be provided to you with your sampling schedules. Normally a site in California is expressed with two numbers, one for the count and one for the site, as in CNTY-SITE, for example 111-100. This coding system is numeric and the county codes are independent of the angler residence county codes.

The Ocean Salmon Project (OSP) has another site coding system that uses three letter codes for ports and port areas that you might see described for the major public boat ramps.

#### **Species Codes**

Fish codes have been provided to you and are sorted three ways: by code, common name, and by AFS common name. These lists include all finfish species found on the Pacific coast. All codes should be listed, if not contact your supervisor. These codes are used for both the species targeted on the trip and for the catch records. The codes for the more common species are 5 letters and the rarer species have a three digit numeric code. Be familiar with the species of fish targeted and caught in your state or area of work. To facilitate some of the more complicated identifications, your Supervisor will provide training and a list locally common species. You will be provided with a field guide and keys for Pacific coast species as well as agency keys where available for the more common fish.

#### **The Catch Census**

In addition to the comprehensive list at the end of this manual, your Supervisor will provide you with a species list of locally caught common recreational species. It is your responsibility to know and identify these more common species by sight. Studying the identification guides combined

with experience in the field should make you knowledgeable in a short time. Learn the key management species.



### Identification of difficult species

All fish that are present at the site for the Sampler to look at should be identified to the species level, if possible. They should be recorded using American Fisheries Society Common Names or approved shorthand versions of those names. Samplers should never code a

fish to the species level that they are not absolutely sure of the identification.

You have been issued two field guides. Miller and Lea's Guide to the Coastal Marine Fishes of California Fish Bulletin #157 and Peterson's Guide to Pacific Coast Fishes. Miller and Lea should be used as your first source of information and should be with you at all times in the field. You never can tell when you are going to run into a rare fish.

The Alaska Sea Grant has published two books, Guide to Northeast Pacific Flatfishes Marine Advisory Bulletin #47 and Guide to Northeast Pacific Rockfish with excellent photographs. These books may or may not have been issued to you depending on your location. If you do not have these books, please call your Supervisor for a copy.

The CDFG offices often maintain slides and photos of local species of fish. These are available to you if you call your local contact biologist for an appointment to view them.



### Priority Species

When sampling fish during busy periods, you may need to sub-sample locations, lengths, and or weights. Sub-sampling fish should always be done by species. Never sub-sample within a species based on a particular length or weight (sampling big or small individual fish). The most important

fish to measure and weigh are illegal fish (taken out of season or undersized, etc.) and over fished species, since these will be rarely kept and their size matters when calculating their harvest in metric tons. When sub-sampling lengths or weights, the following species categories should be measured/weighed first (most important category at the top of the list):

Over fished Species	
canary rockfish	Coho salmon
cowcod	lingcod
widow rockfish	yelloweye rockfish
bocaccio	black rockfish
Quota Managed Species	
black-and-yellow rockfish	blue rockfish

cabezon	California scorpionfish
California sheephead	Chinook Salmon
gopher rockfish	grass rockfish
greenlings (Hexagrammos spp)	kelp rockfish
Protected Species	
Garibaldi	giant sea bass
gulf grouper	broomtail grouper
Sport Managed Species	
barracuda	barred sand bass
barred surfperch	bigeye tuna
black perch	blue shark
bluefin tuna	calico surfperch
California corbina	California halibut
dorado	kelp bass
leopard shark	mako shark
Pacific bonito	pile perch
rubberlip surfperch	shiner surfperch
skipjack	spotfin croaker
spotted sand bass	striped bass
striped marlin	sturgeon
swordfish	thresher shark (Alopias spp.)
walleye surfperch	white seabass
white surfperch	yellowfin croaker
yellowfin tuna	yellowtail

### CRFS Priority Species



### Rare Specimen Collection / Photography

If you encounter a fish you cannot positively identify, attempt to key it out. This may not be possible due to time. If the angler is in a hurry, try to collect the fish and key it out later. If the angler does not let you take the fish, list the field marks on that angler's form. If you have a camera, take a picture of the fish using these guidelines:

1. Have the head of the fish pointing to the left.
2. Get as close as your camera will allow.
3. Have something in the photo to provide a scale. Your measuring board will do.
4. Spread out the fins as much as possible.
5. Photograph the fish out of the direct sun.
6. Take two or three photos just in case.

In asking for the fish from the angler, do not give the impression that you are confiscating the fish or that there is anything illegal being done. Explain to the angler that he may have caught a rare specimen and the biologists may want to record it. There is no reward for this. Do not offer to buy the fish, as that is illegal. Obtain the angler's name and mailing address in order to send a follow-up letter with a species confirmation.

### Saltwater Landing Records

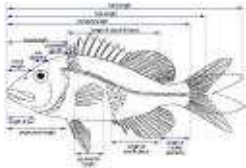
If you encounter a fish that seems unusually large, compare its measurements with the saltwater angling or diving records, see size records in the Appendix.

### Fish Sub-Sampling Procedure

Samplers must measure up to 10 fish of each available species unless refused by the angler. If an angler, or inseparable catch angler group, has caught more than 10 of a particular species, 10 must be selected for measurement (see below). Missing measurements should be explained on the forms. *The priority for measurements is lengths before weights.* Weights can be missed if time does not allow, however, weigh uncommon/prohibited fish at all times. Missing weights can be calculated from length-weight regressions and be substituted for actual weights in some circumstances.

The sampler should either randomly or systematically sample the fish. **NEVER MEASURE OR WEIGH JUST THE BIG ONES!** A systematic selection example: if there are 20 fish of one species, the Sampler could line them up by size and select every second fish from one end. A random selection alternative: The Sampler should blindly reach into the container (with gloves!) and randomly select the 10 fish to be weighed and measured. At no time should the Sampler visually select 10 fish of 'average' size to weigh and measure - this is not random selection!

**NEVER weigh only the largest or smallest fish; this creates an obvious size bias.**



### Fork Length Measurement

Length measurements should be given priority over weight measurements when time is restricted. Fish fork lengths must be taken using the measuring board and recorded to the nearest millimeter. The length measured is fork length.

The measuring board is labeled in centimeters but tick marked in millimeters. Remember to multiply the centimeter reading by 10 before adding the number of smaller markings past the label. For example, a fish that measures to the third line past 23 would be 233 millimeters, not 26 millimeters. Samplers should never round lengths and weights to the nearest centimeter or half centimeter. Rounding fish measurements will introduce a "digit bias".

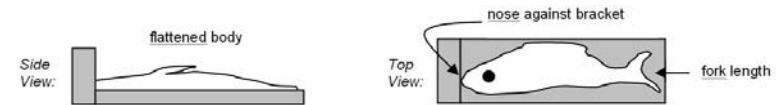
Fish must be laid flat with mouth closed. Keep head and tail in a straight line where possible. The tail fin may need to be spread flat to allow for accurate identification of the fork or longest point.

### Use of the Standard Measuring Board

Length measurements are given priority over weight measurements when time is restricted. A measuring board must be used unless a fish exceeds

### General On-Site Procedures

the length of the board. Length measurements should never be rounded because doing so would introduce a digit bias.



use the measuring board (see example 'fish' above):

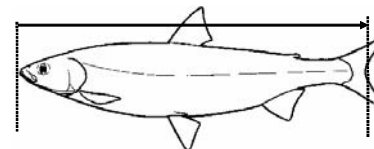
1. Place the measuring board on a hard, level surface.
2. Straighten the fish as much as possible if rigor mortis has set in.
3. Place the fish with the nose flush against the bracket end of the board and with the body centered over the measuring board.
4. Close the fish's mouth.
5. Keeping the nose of the fish against the bracket, press the tail down to the surface of the board. The fin may need to be spread flat to identify the fork.
6. Read the length at the fork of the tail to the nearest millimeter.

All Samplers will also carry a tape measure to be used only on specimens that exceed the length of the measuring board. A tape measure is to be used **only** on specimens that exceed the length of the measuring board. To use a tape measure:

1. Lay the tape on a hard surface.
2. Place the fish on top of the tape. The tape must not be held above the fish—this might result in giving an inaccurate measurement because the tape bends to the contour of the fish's body.

### Measuring Various Types of Fish

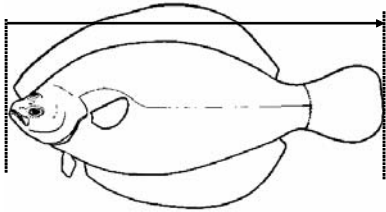
1. Most species are measured from the most anterior tip of the longest jaw (mouth closed) or end of snout, which ever is terminal, to the posterior tip of the tail at its center line. This procedure is the same whether the tail forks in (e.g., mackerels) or protrudes out (e.g., flounders).



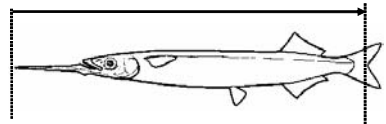
Salmonids - Salmonidae



Eelpouts - Zoarcidae

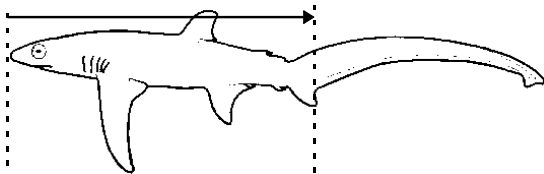


*Left eye flounders - Bothidae*

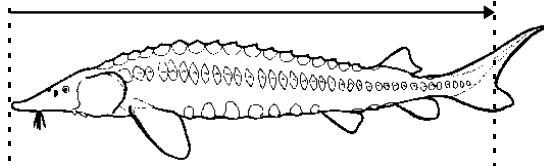


*Halfbeaks - Hemiramphidae*

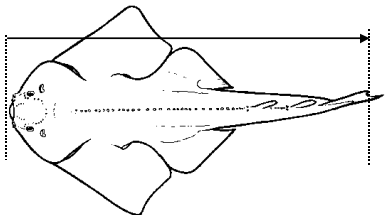
- 2) Sharks and Sturgeons are measured from the tip of the snout to the center of the fork of the tail. For sharks without a fork, measure the shortest distance to the ventral lobe of the tail (see nurse shark below).



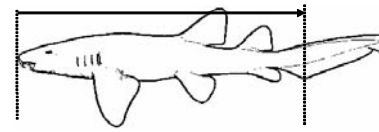
*Thresher sharks - Alopiidae*



*Sturgeons - Acipenseridae*

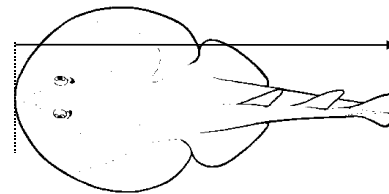


*Angel sharks - Squatinidae*

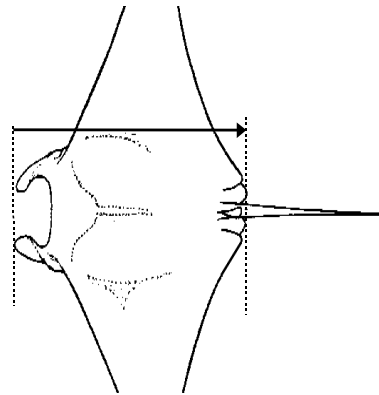


*Nurse sharks - Ginglymostomatida*

- 3) Skates and Rays are measured from the tip of the snout to posterior end of the pelvic fins. Do not include the claspers. When a caudal fin is present, the fish is measured to the caudal fin.

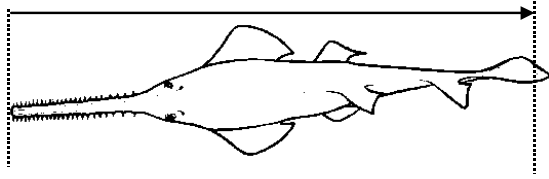


*Electric Rays - Torpedinidae*

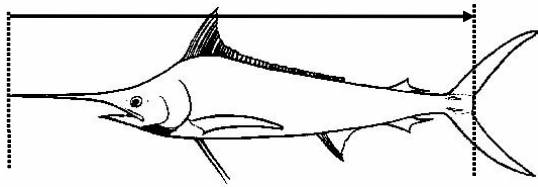


*Manta Rays - Mobulinae*

- 1) Billfish and Swordfish are measured from the tip of the bill to the center of the fork of the tail.



Sawfishes - Pristidae



Billfishes - Xiphiidae

### Weight Measurement

Fish weights are to be recorded to the nearest hundredth of a kilogram. The hundredths place may be zero unless weighing small fish with the 1000-gram hanging scale or with a platform balance on a non-moving surface. Calibrate your scales weekly. Three scales are provided to each Sampler. The scales may vary in manufacture or capacity by area, but are usually adjustable brass spring scales in 10 kg, 2 kg, and 1 kg capacities. The large 10 kg scale is labeled in pounds and kilograms and is accurate to tenths of a kilogram. The smaller 2 kg scale is labeled in pounds and kilograms and is accurate to 5 hundredths of a kilogram (.05 kg or 50 grams). The 1 kg scale is accurate to 1 hundredths of a kilogram (.01 kg or 10 grams). It is permissible to collect weights for bled fish. The weight of blood falls within the variability of stomach contents.

### Do not weigh gutted or de-headed fish.

#### Scale Care

After the scale has been exposed to salt water and and/or fish slime,

1. Rinse the scale in fresh water in the field if possible
2. At home, wash the scale in hot soapy water.
3. Rinse the scale in hot clean water to get the metal hot to speed drying.
4. Shake the excess water from the scale.
5. Place the scale in a warm dry place like the sun, a warm oven, or under a blow dryer.
6. When dry, spray with WD-40 (the WD stands for Water Displacing).

### General On-Site Procedures

#### Scale Adjustment

Here are a few items of known approximate weight you can use to check the accuracy of your scales:

- 50lb scale: 0.39 kg
- empty clipboard: 0.72kg
- measuring board w/insert: 1.3 kg
- 1 Liter of Water = 1.0 kg
- 1 gallon plastic jug of water: 3.9 kg

Calibrate your scales at least weekly

#### Tiny Fish Baggy Technique

Occasionally, a Sampler may come across fish that do not register on the small scale. If several fish of the species have been caught, the Sampler should place 10 of these fish in a plastic bag, taking care that no water accumulates inside. Weigh the entire bag and record the aggregate weight with the first measured fish to the nearest 0.01 kg. Write the words "pool wgt" in the row under the weight column and record the remaining lengths in mm and weights with "0" kg. If fewer than 10 fish of a small species are present, you must record an aggregate weight for all the fish present (matching the number of fish column). It is required that you record lengths for each fish included in the aggregate weight, an aggregate weight for the first fish and "0" weight for the remaining fish using this technique.

Catch Species	obs land seal tak	UNAV alive dead	Fork len (mm)				
			Wgt (decimal kg) or head (tag #)				
			1	2	3	4	5
DABPA	30	0	181	193	211	197	195
	0	0	0.7	0	0	0	0
POOL WGT			200	205	192	197	173
			0	0	0	0	0

PR1 Form with pool weights

**TYPE 3 AVAILABLE EXAMINED CATCH**

GROUP Catch		*Species				*No. of Fish	Fork Len. (mm)			Weight (kg)			D L		Fish S				
		D	A	B	P	A													
1	Sanddab POOL						0	3	0	1	8	1	0	0	7	0	3	8	8
2	WGTS									1	9	3			0				
3										2	1	1			0				
4										1	9	7			0				
5										1	9	5			0				
6										2	0	0			0				
7										2	0	5			0				
8										1	9	2			0				
9										1	9	7			0				
10										1	7	3			0				

Angler Form with pool weights

### Dealing with Fillets



Since we don't like to have fish above the species level (i.e. family or genus) reported as type 3 records (although it is not forbidden) we would prefer unidentified fish fillets to be in the type 2 records.

Rarely, the fillets will actually be identified. For example, three fish worth of P. halibut fillets with skin attached you examine and count from a P. halibut charter trip would be type 3 records. But most of the time, a bag of fillets will be some unidentified taxon such as unidentified rockfish, tuna, bottomfish, etc., and be coded as type 2 records.

You may count the fillets if the anglers don't know how many fish worth of fillets they have. If you cannot identify the species, they are still type 2 unidentified fish even though you counted them.

#### Group Catch Fillets

If the anglers are in a group with a bag of unidentifiable fillets, treat the bag of fillets as part of their type 2 fish. Ask about numbers of any fish that are not here, i.e. thrown back, etc., ask about and/or include the numbers of fish that are in the bag of fillets at that time. Ask if the fish in the bag of fillets are to be eaten. They usually will be.

If the anglers cannot divide among themselves (or report to you some separate number) the fish in the bag of fillets OR they simply don't know how many fish are in the bag of fillets, count the fillets and divide them by the number of contributors. For each person you interview (not necessarily all the contributors) add the result of division to any other (not in the bag of fillets) type 2 fish the angler reports.

#### Procedure for processing group catch fillets into records:

Number of fillets identified to the species level?

### General On-Site Procedures

**Yes** -> Code as type 3 group catch.

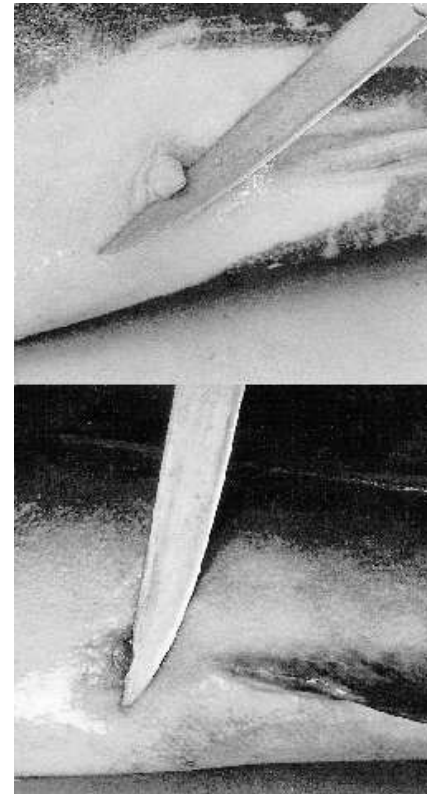
**No** -> Type 2 fish!

Can the anglers report the number of fish per angler?

**Yes** -> Record reported numbers of unidentified fish for each angler.

**No** -> Divide unidentified fish evenly by number of contributors.

### Gender Determination of Selected Species



Lingcod sexing; male top, female below.

The gender of fishes should be recorded on the angler form whenever possible. This information should be considered a bonus, and should in no way interfere with your ability to get length and weight data. The codes for fish gender are the same as for angler gender: 1=Male, 2=Female, 8=Unknown. It is also acceptable to write 'M' or 'F'. Some species of fish can be sexed using external characteristics; for other species, gender may be determined when the fish is being filleted (for party or charter boat mode which requires dissection of the gut), or by using season-specific external characteristics. Obviously, if a fish is releasing live young or eggs, it's a female; the presence of white milium indicates that it's a male.

## Sexing California Sheephead

1. Never cut into fish. Sexual determination is by visual inspection only.
2. California Sheephead are protogynous hermaphrodites (born female and become males as they age). They display sexually dimorphic coloration that changes as they age/change sex. There are four distinct life stages: juvenile, female, transitional, and male.
3. Juveniles are a bright orange-red or red with black spots on the fins and caudal peduncle. They frequently will have a white stripe along their sides from head to caudal fin (Figure 12).
4. Females are a faded rose to brownish red with a white chin (Figure 13).
5. Transitional fish are a dusky rose to deeper reddish-orange in color with darkening of the anterior and posterior thirds of the body. These areas may appear light brownish or grayish in color. The chin remains white (Figure 14).
6. The anterior and posterior thirds of males are dark brown or black. The central third is a deep orange-red to red. The chin is white (Figure 15).



Figure 12 – Juvenile Sheephead

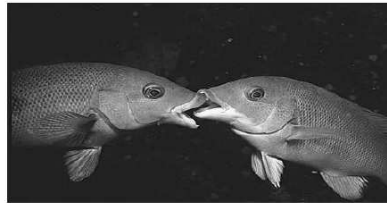


Figure 13 – Female Sheephead



Figure 14 – Transitional Sheephead



Figure 15 – Male Sheephead

You may occasionally hear or read about gender determination for some species that is without scientific basis. Do not record gender for any species not discussed here without checking first with your Supervisor.



“yellowlip bugieybass”

Slang Name	AFS Common Name
Bolinas Cod	brown rockfish
Calico Bass	kelp bass

## General On-Site Procedures

Chucklehead	greenspotted rockfish or copper rockfish
Cinnamon	widow rockfish
Golden Sturgeon	green sturgeon
Goldeneye	yelloweye rockfish
Johnny Bass	yellowtail rockfish, olive rockfish
Kingfish	white croaker
Rock Bass	grass rockfish
Sea Trout	kelp greenling
Skitsadelly	rosy rockfish
White Belly	copper rockfish

*Examples of slang names used by anglers. See Other Codes section for a complete list*



### Unidentified Reported Fish

With regard to fish unavailable for identification, the Sampler should help the angler come up with an accurate species name or group. If the angler is able to identify the available catch accurately, you may be able to code the unavailable catch all the way to species level. You should be familiar with the fish caught in your area that are commonly used for bait, thrown back etc. You should mark these species in your field guide, so that when the angler doesn't know the species of his unavailable catch, you can show him pictures. **The bottom line, however, is “never code the catch beyond a taxonomic level you feel confident with”.** This may mean only coding it to family or genus, or sometimes one of the other general terms for which we have codes, like “bottomfish”.

### Unidentified Examined Fish

With regard to fish available for identification, the Sampler should record the species name and code. You should be familiar with the fish caught in your area that are commonly confused with each other and be able to key them out. Never code the catch beyond a taxonomic level you feel confident with. This may mean only coding it to family or genus, or sometimes one of the other general terms for which we have codes, like “bottomfish”. Never code a fish you examined as a type 2 record unless the angler is still fishing and is returning catch to the ocean (this is only possible for incomplete beach/bank trips). If the fish is very unusual, try and collect a specimen for your Supervisor.

## Salmon Head Sampling

All salmon examined during sampling must be checked for adipose fin clips. The adipose fin clip indicates the presence of a coded wire tag (CWT) in the salmon head. Check to see if the salmon is missing its adipose fin. If so, explain to the angler that you need to collect the head for fishery management purposes. You have legal authority to do so according to Fish and Game Code (see below). Attach the headtag to the salmon head,

measure the fish, record the headtag number and length in millimeters on the data sheet and then remove the head. Place each tagged head in its' own small clear zipper bag. It is important to follow this order. Store the head in a cool location until you can get the head into a freezer. Record the date and port where each headtag was collected or issued on the Headtag Inventory Report Form.

If you cannot remove a head for some reason, attempt to attach the headtag to the fish and get the species and length. Record this information on your data sheet (i.e. headtag number and length) and put NRS (Non-Recovered Species) next to the headtag number. Record NRS and the species name on the back of the corresponding headtag and on the Headtag Inventory Report Form. If you are unable to attach the headtag to the head, place the headtag in its own small zipper bag and store it with the rest of your collected salmon heads. This information is important in tabulating the contribution rates of tagged fish to the year's catch.

Q. What if the salmon is confiscated by a warden?

A. Ad-clipped salmon that are confiscated and should still have the headtag attached and length information collected. The attached tag will be a reminder that they are to be returned to the head lab. Collect the name and contact information of the warden. Enforcement personnel will be contacted to remind them that OSP needs the confiscated head.



### Legal Authority

If an angler refuses to relinquish the head of a salmon inform them of the state law. Section 8226 of the Fish and Game Code:

#### ***Recovery of Coded-wire Tag from Salmon Head***

*Notwithstanding any measurement requirements under this code, and to implement the Department's salmon tagging program, any person in possession of a salmon with a missing adipose fin, the small, fleshy fin on the back of the fish between the back fin and the tail, shall, upon request by an authorized agent or employee of the Department, immediately relinquish the head of the salmon to the State, at no charge, for recovery of any coded-wire tag. The head may be removed by the fish owner, or, if removed by the official Department representative, the head shall be removed in a manner to minimize loss of salmon flesh and the salmon shall immediately be returned to the rightful owner (emphasis added).*

### Salmon Equipment

1. Bucket
2. "Bucketeer" pocket system

### General On-Site Procedures

3. Knife and sheath
4. Cutting Board
5. Small clear zipper baggies (for each head/headtag)
6. Large clear bag and inventory tags
7. Headtags
8. Headtag Inventory Reports
9. Courtesy Tags and Cards
10. Courtesy Headtag Inventory Reports



### Tagging the Head

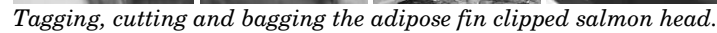
A uniquely numbered headtag is issued for each adipose fin-clipped salmon observed while sampling. The individual heads are placed in small clear zipper bags which are stored in clear large plastic bags with an inventory tag attached. All uncollected heads from adipose fin-clipped salmon are assigned a head tag that is placed in a clear zipper bag with NRS marked on the headtag, the data sheet and headtag inventory report. Non-clear trash bags will not be allowed as they can easily be confused with trash.

Store the head in a clear plastic zip lock bag and freeze as soon as possible. If freezing is not immediately available keep the heads in a cool place to slow the decomposition process. The headtag number must be clearly visible from outside the clear zipper bag. The zipper bag allows the lab to separate the frozen heads without damaging or tearing the headtag.

### Removing the Head

1. Firmly attach a head tag to the lower jaw of an adipose fin clipped salmon.
2. Lay the fish with the head on the cutting board portion on the measuring board and record the fork length.
3. Slide your knife under the gill plate and cut straight forward or at a 45 degree angle, until you are approximately 1 inch behind the eyes.
4. Flip the fish over to the other side and repeat the cut until it meets the end of the other cut. You may have to angle the knife perpendicular to the ground to meet the other cut.
5. Once the two cuts have met, the head should come off cleanly.

### Tag the head before cutting.



Q. What if an angler refuses to relinquish the head?

## Procedures for Tracking and Inventorying Salmon Heads

2005 CRFS HEADTAG REPORT

(Use headtags in NUMERICAL order)

SERIES#: 75200 - 75299

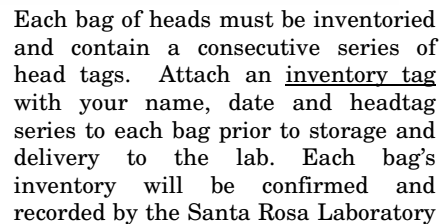
NAME: Tim Greenling

PORT:

Port codes:	CRC = Crescent City	SHC = Sheker Cove	BOD = Bodega Bay	SCR = Santa Cruz
	TRN = Trinidad	FTB = Fort Bragg	SAU = Sausalito	MOS = Moss Landing
	EUR = Eureka		EER = Berkeley/Emeryville	MOH = Monterey
			SNF = San Francisco	MOR = Morro Bay
Mode Codes:	FR1, FR2, PC, MM, & BB		PR1 = Princeton	AV1 = Avila

Mode Codes: PR1, PR2, PC, MM, & BB

C:\redini\PU\BIB\AN\U\AL\INTER\2006\2005\CRFG\_Head by Report.xls



## Courtesy Head Tags

If an angler approaches you with a fish from outside your sample, you may collect it and assign it a courtesy headtag. The information from this fish will be provided to the fisherman and is not used in management. Be sure to fill out a green courtesy card and hand it to the angler and remind him/her to follow the instructions on the card so they can receive the CWT information at the end of the year.

## Important Salmon Goals to Remember

1. All counted salmon must be observed for absence of the adipose fin. All heads from adipose fin-clipped fish must be retrieved.
2. Any vessel that had any effort or catch for salmon should be noted as having targeted salmon. For PR1 there is a check box for incidental catch and for trips where salmon was not primary or secondary targeted.
3. Every boat targeting salmon needs to be asked if they had any salmon released and identified to species where possible
4. During sub-sampling in the PR1 survey, every CRFS boat still needs to be checked for salmon catch, effort and adipose fin-clipped fish.
5. The heads are frozen and delivered to the Santa Rosa head lab.

### Salmon Head Drop Off Protocol

Salmon heads collected by field staff should be taken to one of the Drop-Off Locations listed below (North to South). Contact the office prior to head delivery to confirm office hours. For other arrangements, contact your supervisor who will coordinate a meeting time and place to drop the heads off.

Ports	Drop Off Location	Contact Name And Phone #
Crescent City, Trinidad, Eureka, Shelter Cove	<b>CDFG – Arcata</b> 5341 Ericson Way Arcata, CA 95521	Sara Borok (707) 822-0330
Fort Bragg	<b>CDFG - Fort Bragg</b> 19160 S. Harbor Way Fort Bragg, CA 95437	Lucy Johnson (707) 964-9078
Bodega Bay, Sausalito, San Francisco	<b>CDFG – Santa Rosa</b> 475 Aviation Blvd Ste 130 Santa Rosa, CA 95403	Matt Erickson (707) 576-2878
Berkeley, Emeryville	<b>Berkeley Marina</b> 201 University Ave. Dock K-900, Shed F24	General Number (510) 981-6740
Princeton (Half Moon Bay)	<b>CDFG - Belmont</b> 255 Harbor Blvd Belmont, CA 94002	Ivy Gurvitz (650) 631-2531 or Connie Ryan (650) 631-2536
Santa Cruz, Moss Landing	<b>CDFG/OSPR - Santa Cruz</b> Marine Wildlife Veterinary Care & Research 1451 Shaffer Rd Santa Cruz, CA 95060	Frank Wilhelm (831) 212-7005
Moss Landing, Monterey	<b>CDFG – Monterey</b> 20 Lower Ragsdale Dr Monterey, CA 93940	Todd Phillips (831) 649-2872
Morro Bay, Port San Luis	<b>CDFG – Morro Bay</b> 213 Beach St Morro Bay, CA 93442	Christine Pattison (805) 772-0114
Santa Barbara, Oxnard, Ventura	<b>CDFG – Santa Barbara</b> 1933 Cliff Dr #9 Santa Barbara, CA 93109	Main Line (805) 568-1231

### Form Selection

Your selection of forms differs across assigned fishing modes. While assigned a particular mode of fishing the coding of forms may be affected. For example, some interviews in other than the assigned mode need special

### General On-Site Procedures

treatment. An outline is presented here; however you will need to learn about each form's specifics in their respective procedures.

Assignment	Form	Sample	Treatment
BB	Angler	BB	No X-effort
		PC	Dockside opportunistic
		MM, PR	Bonus
	Summary	ALL	No Arv/Dep counts
	Discard	ALL	Normal
	CPFV	PC only	Not used
	Boat	PR1 only	Not used
	Vessel Check	PC	Normal

Assignment	Form	Sample	Treatment
MMPR2	Angler	BB	Opportunistic
		PC	Dockside opportunistic
		MM, PR	X- effort required
	Summary	ALL	Arv/Dep counts required
	Discard	ALL	Normal
	CPFV	PC only	Not used
	Boat	PR1 only	Not used
	Vessel Check	PC	Normal

Assignment	Form	Sample	Treatment
PC	Angler	BB	Opportunistic
		PC	Dockside opportunistic
		MM, PR	Bonus
	Summary	ALL	No Arv/Dep counts
	Discard	ALL	Normal
	CPFV	PC only	Required on-board
	Boat	PR1 only	Not used
	Vessel Check	PC	Normal and record this trip

Assignment	Form	Sample	Treatment
PR1	Angler	BB	Opportunistic
		PC	Dockside opportunistic
		MM	Bonus MM, no PR2
	Summary	ALL	No Arv/Dep counts
	Discard	ALL	Normal
	CPFV	PC only	Not used
	Boat	PR1	Normal
	Vessel Check	PC	Normal, get PC returns

### Form Differences

Multiday trips are dealt with differently on the Boat and Angler forms. On the PR1 Form you will record catch and effort for the entire trip; while on the Angler Form you will record catch and effort for the last 24 hours of fishing.

## ANGLER SURVEY PROCEDURES

This section describes mode specific procedures for surveys using the Angler Form. The majority of CRFS sampling is conducted with one Angler Form per interviewed angler in four target modes of fishing. The shore based modes are man-made structures (MM) and beaches and banks (BB). The boat based modes sampled with the angler form are secondary launch ramps (PR2) and party and charter boats (PC). The angler form samples catch per trip in most target modes, but also samples MM effort in angler hours per site and PR2 effort in angler trips per boat hour per site. PC and BB are sampled only for catch since effort in those modes comes from telephone surveys.

PC sampling uses two other forms in addition to the angler form and includes specialized vessel sampling procedures which are covered in more detail in their own sections below.



### BB Sampling

The primary goal for BB sampling is to sample Catch Per Unit of Effort (CPUE). CPUE is determined by counting numbers of fish species observed (landings) and asking about catch not observed (releases and other un-landed fish) for each angler. Catch estimates will be calculated for all BB sites in each District for each month.

Estimated mean catch per angler will be calculated and multiplied by total effort from the ALD telephone survey to estimate total catch. Other data relevant to the angler effort and catch, such as location, trip type and fish measurements will be recorded.

Currently beaches are not separate from banks in the data collection, here are their definitions:

- *Beach* - The ocean shore made up of sand or pebbles. Usually washed by high tide waters.
- *Bank* - The slope of elevated land adjoining the ocean or bay. Can be rock or an overhanging cliff, and may be reinforced by materials placed there by humans.

The beach and bank mode of fishing is sampled at a relatively low rate. You will sample multiple sites in a cluster, which may be in a predefined order. You will interview individual anglers with the Angler Form. You may perform pressure checks at intervening sites with the Assignment Summary Form. You may also perform CPFV checks at intervening PC sites using the Vessel Check Form. You may also opportunistically interview PC anglers using the Angler Form. You may measure a fish being returned using the Discarded Fish Form. If you interview MM or PR anglers as special fishery B=bonus. You will not use the PR1 Form or the On-board CPFV form.

## Angler Survey Procedures

### Sampling BB Sites

When a beach or bank site cluster is assigned, you will typically have to cover an extensive stretch of the coast. If there is a predominant point of egress from each individual sites (for example, a central parking facility), you should take up a position at that location so you can intercept a majority of the anglers. If no such point exists, you should position yourself such that the majority of the anglers are within sight and easily accessible. At crowded beaches, close observation of the fishing activity is required, since you must be alert to those anglers leaving the site.

A preliminary canvass to determine the number and location of anglers at a site and a rough approximation of the duration of their trips is a useful tactic. With this information the Sampler is able to maximize intercept coverage by planning his/her movements around those of the anglers. Anglers may fish during incoming tides, however do not introduce bias into the survey by only interviewing anglers during that period, they may be more experienced. The preliminary canvass can also be used to inform the anglers about the study and gain consent to conduct the interview.

### Incomplete BB trips

Sampling in beach/bank mode allows you to interview anglers with incomplete trips. Anglers must be 50% or more complete with their trip by time fished and planned additional time fishing. Incomplete trips are allowed in this mode because anglers may be spread over a large area with multiple access points making it difficult to station yourself at a single point. Incomplete trips are adjusted based on the catch rates for the time fished to account for additional fishing time. Incomplete trips should not comprise more than 50% of the interviews in an assignment.

A terminating canvass near the end of the sampling time to identify and interview anglers who have completed 50% or more of their trip and are eligible for an interview is also appropriate. If it is early in the morning, check to see if they are coming back in the evening and for how many hours. If anglers are coming back in the evening for more fishing probe to see how many hours they will fish.



### MM Sampling

Man made structures anglers are sampled using a roving survey in a cluster of sites. The survey samples MM angler effort and catch at public structures such as piers, docks and jetties during daylight hours. Specific data elements for recoding angler counts and changes in effort (x-effort) while

on-site are included on the Assignment Summary Form and Angler Form.

This survey is similar to the PR2 survey. It has nearly identical site selection and site sampling methods. The unit of effort is the angler rather

than the boat, so differences occur with the effort counts (angler counts) and form instructions. A cluster of sites by have a mix of MM and PR2 sites.

#### *Man Made Structures Defined*

- *Pier* - A structure built out over the water and supported by pillars.
- *Jetty* - A kind of wall, usually made out of rocks, built out in the water to restrain currents or protect a harbor entrance. There must be water on both sides, otherwise it is a bank.
- *Bridge* - A bridge over a waterway.
- *Dock* - Floating platform with land access used primarily for boat moorage, loading, or fishing
- *Other Structures* - There may be other man-made structures that can serve as a platform for anglers.

#### *MM Effort Data*

The primary goal is to estimate effort in angler hours for each MM site in a cluster of sites. This is done by performing angler counts at the sites and intercepting anglers and recording their fishing time. The effort estimate in angler trips is the product of angler hours per day and angler trips per hour. Angler counts (start and stop counts) are recorded on the Assignment Summary Form while changes in effort observed while on-site are recoded on the Angler Form.

#### *MM Catch Data*

The secondary goal is to estimate catch rates for MM anglers. Catch is determined by counting numbers of fish species observed (landings) and asking about catch not observed (releases and other un-landed fish). Catch estimates are calculated for each cluster and month along with the effort estimates. Catch for incomplete fishing trips is adjusted based on additional fishing hours reported by MM anglers.

### **Sampling MM Sites**

Sampling will normally take place during an 8 hour work day during daylight hours. Each cluster will be sampled three times a month. Each site in the cluster must be visited during the day to assess effort levels. The first site in the cluster is pre-selected systematically or at random. The intent is to have the sites visited at different times of the day during the three visits per month. The order in which the sites in the cluster are visited is uniform while the starting site varies. You may also receive a pre-determined list of sites in the order you will sample them.

The Sampler will record start and stop angler counts at each of the MM sites in the cluster. During interviewing the Sampler will track arriving and departing anglers (x-effort). This is done so that counts between the start

### **Angler Survey Procedures**

and stop time may be estimated rather than by counting the anglers again while sampling.

You should set up at a point of access to the pier, jetty, or bridge. The station should be such that you can see and easily approach all anglers using the site. Do not set up at a cleaning station as this will bias the survey towards successful anglers. If anglers are actively engaged in fishing and no changes in effort are occurring, you might canvass the pier or jetty to determine the duration of trips and plan your stop time. You might mention that you can identify their fish for them and provide a length and weight as well as information about the survey.



### **Sampling MM Anglers**

Samplers will attempt to interview all anglers completing their fishing at each MM site during a cluster site assignment. There is no limit to the number of interviews which may be conducted. Samplers should attempt to get interviews from each site within the cluster where angling is occurring. Incomplete MM trip interviews are allowed after the stop time.

#### *Incomplete MM Trips*

Since you have to monitor changes in angler effort from a point of access at busy sites, you may not have an opportunity to rove away from your position to canvass anglers until after the stop count. This is the time to interview anglers who are still fishing. Incomplete angler trips must be 50% of more done, by wet gear hours. Also incomplete trip interviews cannot compose more than 50% of all interviews for your site cluster of sites (50/50 rule for the assignment).

#### *MM Effort Data Collection*

The Assignment Summary form is used to record the start and stop angler counts. The angler form is used to record changes in effort (x-effort) between the angler counts while on-site. Changes to record while on-site are anglers skipped while leaving and anglers who arrive and start fishing. These effort changes are recorded on the current angler form while interviewing. If not interviewing, changes are recorded on the next blank angler form or the previous form (see detailed x-effort instructions below).

#### *MM Start Count*

Begin the count at the far end of the MM structure and count as you return to the origin. Try not to double count or miss anglers behind obstructions. The origin is where you can see all people leaving the structure. Record the start time at the end of the start count.

### MM Stop Count

Begin the count at the origin and work toward the far end of the MM structure. Try not to double count or miss anglers behind obstructions. Record the stop time at the start of the stop count.



### PR2 Sampling

The PR2 angler survey samples secondary launch ramps and hoist sites in clusters. The survey is used to estimate total effort and catch for clusters (groups) of secondary ramps by month using a roving access point method. Secondary launch ramps are those that land the minority of the catch of species of concern in any particular month. The survey counts trailers and samples boats returning to these ramps for effort and catch. Specific data elements for recoding trailer counts and changes in effort (x-effort) while on-site are included on the Assignment Summary Form and Angler Form.

### PR2 Effort Data

The primary goal is to estimate effort in angler trips per site for a day. This is done by counting trailers at the secondary ramp sites and intercepting boats and recording their activity, as either fishing or non-fishing. For each fishing boat intercepted, the number of anglers and total hours on the water is recorded. Angler trips will be the product of trailer hours per day and angler trips per trailer hour.

### PR2 Catch Data

The secondary goal is to estimate catch. Catch is determined by counting numbers of fish species observed (landings) and asking about catch not observed (releases and other un-landed fish). Catch estimates are calculated for each cluster and month.

### Sampling PR2 Sites

Sampling will take place within an 8 hour work day during daylight hours. Each PR2 site in the cluster must be visited during the day to assess effort levels. The Sampler will record boat trailer counts twice at each of the PR2 sites in the cluster. Start and stop sampling trailer counts are recorded after arrival and before leaving. During boat sampling the Sampler will track outgoing and incoming boats (x-effort). This is so that trailer counts between the start and stop times can be estimated rather than by counting the trailers again. For launch ramps, the absence of any trailers would normally indicate that there is no need to wait for a long period, because if no boats are out, obviously none will be coming in.

At PR2 sites, wait until the boat is not going to be in the way of other boaters or creating a safety hazard. Try not to interfere with the anglers while busy cleaning the motors. Avoid exclusively interviewing boat owners as opposed to passengers, since owners may bias the sample toward higher activity levels. Passengers may say, "Ask Joe, it's his boat, he goes out a

### Angler Survey Procedures

lot". They might say, "You don't want to talk to me, I was just here for the day". Reassure the passengers that their information is just as important as the boat owner's. If you are not very busy with interviewing at the PR2 launch ramp it is acceptable to sample BB and PC anglers opportunistically at an adjacent beach or partyboat operation.

Varying the sampling hours is especially important when sampling in PR2 mode. If you repeatedly sample the site too early in the day you risk missing data from anglers that fish further offshore since they typically come in later in the day. If you sample the site too late in the day you could miss those anglers that fish either in the bay or very close to shore. Either way, you would be missing valuable data.



### Sampling PR2 Boats and Anglers

Samplers will attempt to intercept all boats returning at each PR2 cluster site during the assignment. There is no limit to the number of angler interviews which may be conducted. Samplers should attempt to get interviews from each PR2 site in the cluster where effort is present. Samplers may return to a site in the cluster only after all the other sites in the cluster have been visited.

### PR2 Boat level sampling.

If you are interviewing a fishing boat with multiple anglers and the PR2 site is very busy, and the catch has not yet been separated into angler bags, you may interview the group of anglers as if they had inseparable group catch (see Angler Form instructions below). This is permissible and may be faster than separating the catch for one angler when there is time for one form.

### PR2 Effort Data Recording

The Assignment Summary Form is used to record start and stop trailer counts. The Angler Form is used to record changes in effort (x-effort) between the start and stop times. Changes to record while on-site are boats launching, non-fishing boats returning and boats missed. All boats are included in the x-effort except those without trailers. These effort changes are recorded on the current angler form while interviewing. If not interviewing, changes are recorded on the next blank angler form or the previous form (see detailed x-effort instructions below).

Kayaks, personal watercraft (PWC), and other craft that were not launched from a 'boat' trailer are not included in the PR2 x-effort. However, when these "no-trailer" boats contain anglers the Sampler will be coding question B3 "PR trailer in count area" such that an adjustment is made to the estimate of anglers per trailer. Three questions on the Angler Form in the section for Boats are required for accurate PR2 effort estimation:

### B3. PR trailer in "count area"

This is a “yes” if the trailer was in the launch ramp parking facility where it could be counted by a field person. It is a “no” if the trailer was parked away from the launch facility due to lack of trailer space, etc. or the boat was launched without a trailer. The count area is a reasonable area where the trailers may park. Your supervisor will notify you if you are to count boat trailers outside of the parking lot or nearby street. For example, you may (or may not) be asked to count trailers in a nearby campground. It is not necessary to count every possible trailer that used the site.

#### B4. Boat departure time

If the angler reports that the boat departed on a prior day the departure date must be recorded at B5.

#### B5. Departure Date

Record a date of departure if the boat left on a previous date.

#### PR2 Catch Data Recording

All craft returning from a fishing trip may be intercepted for angler interviews. This includes kayaks, water craft (PWC) and other non-trailer craft if they carry an ‘eligible PR angler’. All boats should be screened for anglers and also for private or party/charter status. Sometimes small skiffs are really CPFV trips and would be interviewed as opportunistic PC anglers.



#### MMPR2 X-Effort Coding

The sampler will keep track of “changes in effort” (X-effort) in MM and PR2 assigned modes. All x-effort is recorded on angler forms. If x-effort counts are made on a blank angler form and the Sampler does not get any more interviews, the form should still have an interview number, but the status will be zero (non-angler form). Fill out #1-11 to complete the status 0 form with the counts. If there was a complete interview 15 or fewer minutes earlier, the X-effort counts may be put on the previous interview (see detailed discussion of 15 minute rule below). Status 0 forms are added to the ‘Status 0 / NF Boats’ count for the Assignment Summary.

#### MM X-Effort between interviews.

These counts include all the MM anglers that could be included in the angler count. Exclude shellfish anglers. X-effort boxes are left blank after the stop count. These counts go on the header of the angler form at A and B:

MMPR2	0	1	A. MM Anglers skipped	*	0	2	B. MM Anglers that started fishing
	Since last interview				Since last interview		

Angler Form, Header MM X-Effort Items

**A. MM Anglers skipped** - The Sampler will keep a count of anglers who complete fishing and are not interviewed. This would occur during periods when the Sampler is busy with other tasks.

**B. MM Anglers who started fishing** - The Sampler will keep a count of anglers who arrive and start fishing.

#### PR2 X-Effort between interviews.

These counts include all the types of boats, both fishing and non-fishing, that could be included in the trailer count. This is number of **boats**, not number of people. Exclude deflated inflatable boats, car-top, and pickup truck boats with no trailer usage. PWC are not included in these counts. The Sampler does not have to determine if the tallied trailer was in the count area or not. X-effort boxes are left blank after the stop count. These counts go on the header of the angler form at C, D and E:

C. # PR2 Boats TR Launched	0	2	D.* Non-Fishing TR	E.* Missed TR	X-Effort
	Since last PR2 boat				

Angler Form, Header PR2 X-Effort Items

**C. # PR boats launched from a trailer** - The Sampler will keep a count of all boats launched from a trailer.

**D. Non-fishing boats returned to a trailer** - The Sampler will keep a count of all non-fishing boats coming in and put on a trailer.

**E. PR boats missed on a trailer** - The Sampler will keep a count of all boats coming in that were not intercepted for any interviews. The activity of these boats, fishing or non-fishing, does not have to be determined. This would occur during periods when the Sampler is busy with other tasks.

#### Status Zero / 15 Minute Rule Instructions



X-effort as well as ‘bad anglers’ encountered (refusals and language barriers) should be time stamped by using an interview within 15 minutes of its observation.

If there is an interview before the x-effort but none after and the previous interview is within 15 minutes of the x-effort, it may be recorded on the previous interview. If more than 15 minutes has elapsed since the last interview, x-effort may be recorded on the next interview. If there is no next interview or the next interview is more than 15 minutes later, a status zero form should be produced and the time recorded as the time the x-effort event occurred. The time of the x-effort is important. The time of the status zero form is not the time at which the sampler determined that more than 15 minutes have elapsed since the x-effort occurred and there is no interview. The time of the status zero interview should be the time at which the x-effort took place. There is no need to generate a status zero interview if there is an angler interview within 15 minutes of the x-effort.

A good strategy is to record the x-effort on a blank form with the time. If no angler is interviewed within 15 minutes check the previous form. If there is no previous form at this site or there is a previous form and is more than 15 minutes before the x-effort, the sampler can complete the form as status zero. If an angler is interviewed within 15 minutes after the x-effort, the x-effort stays on that angler's form and the time is changed to the time of the interview. If there is an angler form within 15 minutes before the x-effort, the x-effort can go on the previous form and the time is not changed.

Any x-effort taking place within 15 minutes (multiple x-effort counts) of a time stamp (before or after) may be included on one form. The window for adding up x-effort may not exceed 30 minutes. When recording only x-effort at a site due to a lack of anglers, status zero forms should be a maximum of 30 minutes apart. Thus a sampler observing many non-fishing boats returning over a number of hours with no anglers interviewed will have a status zero from rate of two forms per hour. If there is no x-effort, no status zero forms are required.

### **X-Effort Coding Tips**

1. Your cluster list will determine if a site has just one target mode or both MM and PR2 applicable for x-effort and interviewing at a specific site in the cluster.
2. If only one cluster mode is applicable, interviews in the other mode shall be B=bonus forms.
3. You may perform pressure checks at other sites and for other modes while sampling MMR2 assignments, leave x-effort target mode and arrival and stop counts for those sites blank on the ASF.
4. X-effort is not 'required' on the boat leader's form. X-effort may be coded on the other angler's forms when applicable for the target mode.
5. Do not record x-effort on special Fishery 'B' (bonus) angler forms (intercepts outside the target mode or site of coverage).
6. BB and PC interviews may be obtained during MM and PR2 cluster sampling; they are NOT special fishery 'B' forms (bonus).
7. MM and PR interviews obtained during BB and PC mode target, however, are considered "bonus" (state fishery code "B").
8. If there is a change in X-effort but no anglers after 15 minutes (on which you can record the change), record on the next blank form and code it be status zero.
9. If there is a change in X-effort but no more anglers (on which you can record the change) but there was a previous angler 15 minutes or less

ago, record X-effort on the previous form, rather than create a status zero interview.

10. If the Sampler observes x-effort after the stop count, do not record any x-effort or make a status zero form.

## THE ANGLER FORM

Included in this section are some of the more general issues regarding the angler form and interview. The basic design of the questionnaire, forms for the interview and the clipboard provided are to facilitate your interview process. They should be used properly.

Your training session with your Supervisor will address the form and how to fill it out. The sections of this manual titled "Item-by-Item Instructions" provide detailed and specific instructions on how to code each question.



### Questionnaire Usage

You will be given a laminated copy of the **questionnaire** used with the angler form. The questions for the interview are written out, in full, for a purpose. The Sampler should try to word each question as it is written. In order to have meaningful comparative data, each angler must be responding to a standardized stimulus. Methodological studies have shown that even slight changes in wording, for example "should" versus "could," drastically influence item response. Some of the questions offer more probing phrases than you would actually use in asking the question based on the particular circumstance; or example, the question concerning mode of fishing. We don't want to give a bad impression by asking fishing mode options of an angler that is obviously fishing from a pier. Use your good judgment on these questions or ask your Supervisor. Remember however, the portion of the question that is asked should be worded as printed on your questionnaire sheet.

### Angler Form Layout

The angler form is divided into ten logical areas of data collection, eight on the front for fishing effort and angler demographics and two in the back for catch reported and examined. Additional sections or "add-on" questions, usually economic, may be included on the form from time to time. An instructional supplement to this manual will be provided in those cases.

### Header Items

The top margin of the form contains prompts for screening eligibility, the privacy act, code for special fishery angler or form, and numbers of pages when additional sheets are needed for large catches on additional sheets.

ELIGIBILITY SCREENING: Completed a sport fishing trip in <one fishing mode> in U.S. marine waters for finfish?  
*Exceptions: 50% or more of a MM or BB trip. Non-fish trips with a caught finfish. Mexican water boat trips.*

PRIVACY ACT: This study is being conducted in accordance with the privacy act of 1974. You are not required to answer any question you consider to be an invasion of your privacy. Use questionnaire for correct wording.

☐ SPECIAL FISHERY CODE

Pg # ☐ of # ☐

1=Yes 0=No 0123456789

\* = Key Question (for good interview)

## The Angler Form

### Introducing the Angler to the Survey

There are basically two kinds of introductions: the general "canvassing" introduction to locate eligible anglers and the more formal introduction and Privacy Act statement. With the Introduction and Privacy Act Statement you can be a little freer with the wording. The phrases used and the level of detail provided must be such that they can be understood by the particular angler being interviewed. For example, "you don't have to answer if you don't want to" is more appropriate with a child than any discussion of the Privacy Act of 1974.

### Screening for Angler Eligibility

**An eligible angler is one who has finished sport (not commercial) fishing for fin-fish (not crabs or shellfish) or caught a fin-fish (by-catch in shellfish fishing) in saltwater (not fresh) in the designated mode for the day. It can also be a shore angler who is still fishing as long as he has completed at least half of his trip (beach/bank or man-made structure fishing) in hours for the day.** All fin-fish anglers including children —whether they have or have not caught anything—are potentially eligible.

- Q. What if the angler was interviewed yesterday and is reluctant to be interviewed again?  
 A. Explain to the angler that we need to interview him again in order to properly represent his participation in the fishery. For our sample to be representative of all trips made, we want to interview avid anglers more often than occasional anglers.  
 Q. What if a boat angler spent part of her trip in freshwater and part of her trip in saltwater?  
 A. If the majority of time was spent below the saltwater cutoff, the angler is eligible to be interviewed. The Sampler would collect information (wet gear hours, catch, etc.) only for the saltwater portion of the trip.



### The Privacy Act

As soon as you establish the eligibility of the angler, you could launch right into the Privacy Act statement. An abbreviated statement is found at the top of the laminated Angler Form Questionnaire used for the interview. All surveys conducted using federal funds are regulated by the Privacy Act of 1974. This act stipulates that each person who is interviewed must be informed of the following: the auspices under which the survey is being conducted, whether their participation is voluntary or mandatory, what will happen to them if they choose not to participate, and how the information will be used.

The Privacy Act requires that this information be available to each survey respondent in written form. For this reason, you will have and should keep available several copies of the longer Privacy Act Statement. If the angler is interested, the Sampler should provide a copy of this statement and discuss it if necessary. Most anglers will be satisfied with the abbreviated statement which appears on the Angler Questionnaire. It must be stressed that participation in this survey is voluntary. While anglers are used to

having their catches inspected by persons who enforce regulations, they should never get the impression that the survey is mandatory.

#### Privacy Act Statement

Information collected in the CRFS is authorized under the Fish and Wildlife Act of 1956, the Migratory Marine Fish Act of 1959, and the Fishery Conservation and Management Act of 1976. This information will be used in assessing the influence of fishing on any fish stock and in determining future recreational fishing needs.

All information collected will be combined with information provided by other recreational fishermen and used only for statistical purposes. Any information which would permit identification of the individual will be held in the strictest confidence and will be used only by persons engaged in and for the purposes of the survey.

Participation in this survey is voluntary and there are no penalties for refusing to answer any question. However, your cooperation in obtaining this much needed information is extremely important in order to insure the completeness and accuracy of the statistical results.

#### Key Questions (\*)

Please realize that every question on the Angler Form has a specific purpose. Although the "key questions" (marked with an asterisk - \*) must be answered for the data to be used in the statistical programs to compute catch, the other questions also provide vital information relating to correction factors and refinement of the catch estimates.

#### Use of Blank Boxes and 9 codes

Blank boxes are generally reserved for "not applicable" or "not used" in a particular field. Nines with an eight at the end (9..8) are used for items coded as "don't know" or "unknown" and nines (9..9) are used for items refused by the angler or data you cannot obtain or did not attempt to obtain (such as weights). The Sampler forgetting to ask and language barrier issues are the same as refused. Check the specific instructions for particular intercept items relating to these codes as some exceptions exist.

#### Multiple Forms per Angler (Page \_ of \_)

More space than the forms allow may be needed for recording both unavailable catch (Item 26a - type 2) and available catch (Item 26c - type 3). If this is the case, use the back of a second form to continue recording the catch. Items 1-9 on the front of the second form should be filled out in case it gets separated from the first form. Also fill the "page # of #" (opposite Item 1). These two sheets should be stapled together when you return to the office.

If an angler has fished in two modes, you may fill out two forms for each mode fished, provided he/she has finished fishing in both modes.

#### The Angler Form

If the angler used more than one type of gear, the Sampler should code the gear that was used, or in the water, the greatest amount of time. Spear guns or pole spears are coded 8 for "Spear". If they fished with both spear and hook and line, probe to see how many hours they fished with each gear and where they used them.

1. If different gears and different modes, you may make two interviews for each angler.
2. If different gears and same mode, then make one interview and code the gear used most of the trip.



#### Special Fishery Sampling

We have a modified interview which we call a "special fishery" interview where some items may not be recorded. This is taken to complement, but not duplicate, sampling programs undertaken by CDFG. CDFG programs mainly sample specific fisheries, such as white seabass, for quota management and/or tag recovery. Your Supervisor will give you specific instructions for such sampling in certain modes, areas and waves. In these cases the "special fishery" interview may ask only questions up to a defined point or skip sections of the interview. This provides us with comparable target species, demographic and avidity data for anglers whose fishing mode or target fishery is sampled by CDFG.

#### Intercept Items

*	1. Assignment No.		2. * Sampler	Intercept
*		3. Month/Day		
*		4. Interview #		
*		5. Time interview started (24 Hr:Min)		
*		6. Cnty-Site Code		
	8. Site Name <small>First interview at site</small>			
*	9. Mode:	<small>1=Pier/Dock, 2=Jetty/Breakwater, 3=Bridge/Causeway, 4=Other Structure, 5=Beach/Bank, 6=Party Boat (per head), 7=Charter Boat (group paid), 8=Private/Rental boat</small>		
*	10. Status:	<small>0=Non-angler 1=Complete 2=Non-key ref.</small>		
	# of Initial Refusals	# of Language Barriers	# of Key Refusals	< These must be in the mode of fishing above

The first section, the "intercept box", is administrative and consists of information about the sampling site and interview date. Within this section the information in questions 1-4 form the "ID-code" of the interview and must be unique for each angler interview.

There will be times during the day when you will have little to do. This time can be used to advance fill most the boxed identifying information on forms which will later be used. To prevent waste, you should not

advance fill too many. This time can also be used to review and edit completed forms.

#### Effort Items

## CRFS Sampler Manual

*	E1. Fishing Effort Area: Ocean (or open bay), River, Bay or harbor, S.F. Bay, Mexico	Effort
*	E2. Gear 1=Hook & line 2=Dip net 3=Cast net 8=Spear 9=Hand	
*	E3. Wet Gear hours fishing in <i>above mode</i> ?	
*	E4. SHORE trip add'l hours. 0=Complete Trip must be 1/2 done. 50% of all interviews must be "complete".	

The effort items assign the majority fishing time to a water area and gear. Anglers may fish in more than one area and use more than one gear, but we will be assigning the area and gear that was the majority of the trip in hours fished.

The majority effort area and gear included hours yet to be fished for shore modes.

## Boat Items

*	B1. Interview # of first boat angler. (B2-B11 - First Boat Angler ONLY)	Boats
*	B2. # Anglers in boat	
*	B3. *PR Trailer 0=no 1=yes in Count Area? K=kayak	
*	B4. Departure Time? If prior day record date >>	
*	B5. * Deprt. Date	
*	B6. Distance from any shore? 1-<=3 mi. Code if island -> 2-more than 3 mi.	B7. <=3 mi. CA Island
	B8. CPFV Boat Permit Number	
	B9. CPFV Boat Name:	

The boat items code anglers into boat groups, collect effort levels and areas specific to boats, and identify party and charter boats. Effort levels include total boat water hours and if the boat had a trailer for trailer hours. Effort areas for boats include distance from any shore including specific islands.

## Location Items

L1. BOATS: Asked Fishing Location? (1=Yes, 0=NO, 3=Same as First).	Location
L2. Location(s)	
L3. Format: 1=Degrees' minutes' grid size 2=State site code# 8=DK 9=RE 3=Degrees' mins' sec's 4=Decimal degrees 5=CDFG Block-Box <+grid size> B, B-b, B-b-b, B-b-b-b, B-b-g	
L4. Angler gave location using: <input type="checkbox"/> Chart <input type="checkbox"/> GPS/Loran <input type="checkbox"/> Site name Fishing Site Name (Record code(s) at L2):	
L5. Bottom Depth(s) [feet]	
L6. Depthfinder used?	
L7. All catch from this location? 1=yes, 0=no, then fish from Location on back. 8=no catch	

The location items code boat on-the-water locations of catch (or effort if no catch). Catch locations include bottom depth, method of location, and which catch was caught there, when known. The catch location can be independent of the effort area, which allows us to get the fishing location and depth for important species, such as managed rockfish.

## Target Species and Catch

### Items

1					Target Species
2					

The target species and catch flags gather the type of fishery the angler was in and if there was any catch. The catch flags also allow

grouping of catch for anglers who share bags or who are interviewed together for catch, such as all the anglers in a boat.

*F1. PRIMARY AND SECONDARY TARGET SPECIES: 0=Anything 1=Bottomfish 2=Sharks 3=Surface 4=Tuna F = same as First boat angler									
*F2. Reported or unavailable catch (for this angler only)?		*F3. Examined and available catch? If yes, code F4-5 >>				ON THIS FORM			ON OTHER FORM
						*F4. # of contributors			*F5. Interview ###

## The Angler Form

### Angler Items

*	A1. RESIDENCE? Country, State County: IF DK get City Name	A8. Name: Full name if >15	Angler
*	A2. Zip code? 9=Relaxed 8=DK (get city)	A6-7. Days Saltwater Sportfished in DISTRICT	
*	A3. License Type: 0=None, 1=Annual, 3=Daily, record days	A9. Gender: 1=Male 2=Female	
	A4. Daily License # Days	A10. A Phone # 7=< age 16 0=No phones Foreign leave blank	
	A6... in last 12 Months?	A7... in last ONE Month?	

The questions at the bottom box labeled "Angler" are called demographic questions and characterize how avid the angler is, where they live, type of license and contact information. These data are used to re-contact the angler for follow-up surveys, make economic analysis and to complete estimates of total angler trips and total numbers of anglers

### Reported Catch Items

TYPE 2 REPORTED OR UNAVAILABLE CATCH (ONLY FOR THE ANGLER ON THIS FORM)									
Common Name		*Species		*No. of Fish		*Dispc		Locati	
1									1
2									2 Ty

pe 2 records are fish unavailable for identification and are reported by the angler. These fish are mainly returned fish (except for fillets).

### Examined Catch Items

TYPE 3 AVAILABLE EXAMINED CATCH											
<input type="checkbox"/> GROUP Catch		*Species		*No. of Fish		Fork Len. (mm)		Weight (kg)		D L Fish S	
1											1
2											2 Ty

pe 3 records are fish examined by the Sampler which may be measured and weighed. These fish are mainly to be eaten (except for bait).

## Angler Form Item by Item Instructions

The Angler Form is to be used when a fin-fish angler is intercepted at a fishing site. The screening questionnaire at the top of the form determines whether or not the angler is eligible to be interviewed. A form should be started for every eligible angler with whom the Sampler attempts to conduct an interview.

\*Key Question. Key questions must be answered for an interview to be useable. Key questions are indicated below and on the form with an asterisk.

FIELD	INSTRUCTIONS	CODES AND FORMATS
INTRODUCTION		
Hello, my name is _____ and I represent (PSMFC / CDFG). We are interviewing marine recreational anglers for a study sponsored by the National Marine Fisheries Service.		
PRIVACY ACT STATEMENT: This study is being conducted in accordance with the Privacy Act of 1974. You are not required to		

CRFS Sampler Manual

FIELD	INSTRUCTIONS	CODES AND FORMATS
answer any question that you consider to be an invasion of your privacy.		
SCREENING		
<b>Have you completed a saltwater sport fin-fishing trip today?</b>		
Screen	IF shore fishing determine if 50% or more complete	Yes: go to next No: ineligible Refused: code a refusal in the STATUS row.
HEADER		
Special Fishery Code	This box is used in some subregions, areas and modes where we may use different procedures. You will be notified and given instructions about specialized state fisheries in your area.	B = Bonus MM or PR2 collected outside of the assigned mode. C = Crew member from a PC who participated in sport fishing. T= Tournament. Anglers in a fishing competition. Not in PC fishing mode.
Q. Are Deadheads and Pinheads on charter boats counted as crew? A. Only paid employees are crew, guests of the boat are regular anglers. Q. What are deadheads and pinheads? A. Anglers that are guests of the captain, usually they catch a lot of fish.		
Page __ of __	When more space is needed for fish records on the back, staple additional sheets.	Sheet number of total stapled sheets.
X-Effort		
*A. MM anglers skipped	The number of MM anglers not sampled who completed fishing and left the site while you were monitoring effort. Required for site cluster modes 'MM' and 'MMPR2'	NN= anglers skipped since last interview <blank>=Not applicable
Q. Do I code MM anglers who refused as missed? A. No, those get coded at Q10a Refused.		
*B. MM anglers who started fishing	The number of MM anglers who arrived and started fishing while you were monitoring effort. Required for site cluster modes 'MM' and 'MMPR2'	NN= anglers started fishing since last interview <blank>=Not applicable
Q. If I am sampling PR2 and I interview an MM angler at the loading dock, should I start monitoring MM x-effort? A. No, if the site cluster mode is PR2, you are not going to be monitoring MM x-effort. However, you may code the MM interview as special fishery B=bonus.		
*C. Trailered PR2 boats launched	The number of PR2 fishing boats that launched while you were monitoring effort. Required for site cluster modes 'PR2' and 'MMPR2'	NN= fishing boats launched since last interview <blank>=Not applicable
Q. Do rental boats get included here? A. Yes, include the number of rental boat launches and returns if they are part of the site.		
*D. Non-fishing trailered PR2 boats returned	The number of PR2 non-fishing boats that returned to the ramp while you were monitoring effort. Required for site cluster modes	NN= NON-fishing boats returned since last interview <blank>=Not applicable

The Angler Form

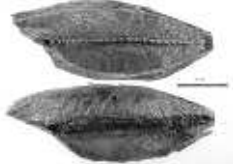
FIELD	INSTRUCTIONS	CODES AND FORMATS
*E. Missed trailered boats returned	The number of PR2 boats you missed that returned to the ramp while you were monitoring effort. Required for site cluster modes 'PR2' and 'MMPR2'. Count a boat as missed if all the anglers on that boat refused to be interviewed.	NN= boats missed since last interview <blank>=Not applicable
Q. Can I code PR2 x-effort on an MM interview? A. You can keep track of x-effort of both modes on the same form so long as both modes are being sampled simultaneously at the site. For example, we can sample boat hoist anglers and pier anglers simultaneously at the same site (cluster site mode=MMPR2 at a pier with a boat hoist). In this case, MM and PR x-effort for the site can be monitored on the forms even if the x-effort is MM and the form is a PR2 interview (and vice-versa).		
INTERCEPT BOX		
*1. Assignment Number	Enter the assignment number given to you by your Supervisor All forms from one assignment ID must have the same assignment number.	011001 – 126999 MMDNNN MM= month D= district NNN= sequence number
*2. Sampler	Enter your personal 3-digit ID code.	400= "Sally Sampler"
*3. Month/Day	Enter the month and the date of the interview. Format = MMDD.	Example: May 1 = 0501
*4. Interview Number	Each Sampler is to assign a unique interview number (Item 4) to each angler form, beginning with "1" and running consecutively through all forms completed for that assignment, even if there was a change in sites. If you undertake a second assignment, you commence numbering the second assignment forms from "01" again.	1-999 Right justified Leading zeros not required.
Q. Do we start over in numbering interview # on Angler Forms at each new site visited in a cluster? Or just keep adding to the running total? A. A running total. All interviews run in consecutive order by time of day during an assignment. This includes any bonus or opportunistic interviews. You only start over at interview '1' when you do a new assignment with a new assignment ID.		
*5. Time of Interview	Enter the time you started conducting the interview. Each interview time will be unique. Use military time to designate the hour. For PC, the first interview time will be the time the fishing stops.	Example: 4:30 p.m. = 1630
*7a. County Code	Enter the 3-digit numeric county code for the county in which the interview took place. It is easy to slip up and use the wrong county	001=Alameda 111=Ventura See site list

FIELD	INSTRUCTIONS	CODES AND FORMATS
	code, e.g. the county where the Sampler spends the majority of his/her time sampling.	
NOTE: Be careful when crossing county lines, since there is a tendency to use the code for the county you work the most often.		
*7b. Site Code	Enter the 3-digit site code for the site at which the interviews took place. The site code must agree with county code.	NNN 408="Waldo Pier" See your site code list provided by your Supervisor
NOTE: Remember to use the correct site code as you go to an alternate site. Site codes have been provided for you in the site descriptions.		
8. Site name	For the first interview at the site please record the name of the site as it appears in your site list for this month.	Example: "Waldo Pier" <blank>=subsequent interview at this site.
<b>Were you fishing only from...?</b>		
*9. Mode	Enter the code that best describes where the angler fished (for the majority of his/her time spent fishing). If the angler has completed fishing for the day in a different mode, a separate interview for that mode may be conducted.	1 = Pier, Dock 2 = Jetty, Breakwater 3 = Bridge, Causeway 4 = Other man-made Structure (specify) 5 = Beach or Bank 6 = Party Boat 7 = Charter Boat 8 = Private or Rental boat
Q. What is the mode if a CPFV says they are on a private trip? A. If there were no paying passengers then the mode is 8= 'Private'.		
*10. Status	Completeness with respect to key questions (*) on this form. Complete this field at the end of the interview to designate the status.	0= non-angler or ineligible angler form 1 = Interview complete 2 = Non-key item missing
Q. When do I make a status zero form? A. Create a status zero form when x-effort occurs and no more anglers are interviewed at the site or when there are problems with refusals or language problems and there are no further interviews at the site. Q. What is a bad angler? A. A 'bad angler' is an angler who completed fishing and refused to participate, refused a key item on the angler form or was unable to be interviewed due to a language barrier while sampling with the angler form. Each type is tallied on the angler form. Q. Does an angler "don't know" response to a key item cause a refusal? A. No, in general, only "refused" (or you forgot to ask) affects status.		
10a. Refused	Anglers who refused the interview from the start (initial refusals) since last interview	N=Number of initial refusals Do not leave blank
Q. What if an angler refuses, but later agrees to be interviewed after their buddies get interviewed? A. Subtract one from the Refused box and create a new interview. Q. What if the head of a family refuses, are all family members refusals? A. Yes, if the head of the family is speaking for all and none disagree.		
10b. Language	Anglers who were unable to be interviewed due to	N= Language barrier prevented interviews

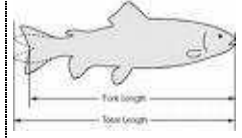
FIELD	INSTRUCTIONS	CODES AND FORMATS
	communication problems (language barrier) since last interview	Do not leave blank
Q. What if an angler gets coded this way because they were speaking a foreign language, but I later overhear them speaking English? A. Some anglers will 'soft refuse' of the interview this way. It is an initial refusal. Subtract one from the Language box and add one to the Refused box.		
10c. Key refusal	Anglers who agreed to be interviewed, but refused a key item (mid-interview item refusal) since last interview	N = Refused a key item (marked with a *) Do not leave blank 0=no key refusals
Q. What if I have a 'good' form and later realize a key item is missing? A. You will have to discard the form and code a key refusal on the next interview by adding one to 'Key refusal'. You should renumber the subsequent form interview numbers. Q. What if the angler refuses to answer key questions but will let me examine their catch. Can I get the lengths or weights? A. A status zero form may also be used to collect catch data on an uncooperative angler who will let the sampler measure their catch.		
<b>EFFORT BOX</b>		
<b>Was most of your &lt;mode&gt; fishing time in the ocean, river or bay?</b>		
*E1. Fishing Effort Area	Enter the code for the area where most of the fishing time was spent. Be aware that the angler may not have fished in the current area (i.e. the area in which he is intercepted) for the majority of the day.	O = Ocean (or open bay) R = River If river or bay, ask: <b>What (river/bay) was that?</b> Probe to determine correct area. Be aware of freshwater cutoffs. B = Bay or harbor (other than San Francisco) S = S.F. Bay and estuaries M = Mexico
Q. How do I code the area when the angler tells you that he or she fished half inside (bay) and half outside (ocean)? A. Code the location for the majority of the fishing time (wet gear) not the majority of the catch. For an effort tie, ask for the area where most of the fish were caught. Note: Santa Monica and Monterey Bay are open bays and are therefore coded as Ocean.		
<b>Have you been &lt;mode&gt; fishing here today, primarily with a hook and line?</b>		
E2. Gear	Enter the code for the gear type that was used by the angler for the majority of time spent fishing.	1 = Yes, Hook & line If no, ask; <b>What type of gear have you been using?</b> 2 = Dip net 3 = Cast net 4 = Gill net 5 = Seine 6 = Trawl 7 = Trap 8 = Spear/spear gun 9 = Hand
NOTE: Code "Hawaiian sling" and "bow and arrow" as 8=spear and code "hoop net"		




FIELD	INSTRUCTIONS	CODES AND FORMATS
	as 3=cast if it is thrown.	
<b>How many hours have you spent &lt; mode&gt; fishing with your gear IN THE WATER today?</b>		
*E3. Wet Gear Hours	Enter the amount of time angler actually spent fishing with his/her gear in the water in their mode. SHORE MODE NOTE: If remaining hours is more than the fished hours, the angler is not yet eligible, terminate interview. See ASF for tenth hour to minutes conversion table.	HH.H decimal hours to nearest tenth hour leading zeros required. 4-9 minutes=00.1 hours Examples: 1 hr 3 min = 01.0 1 hr 57 min = 01.9 1 hr 58 min = 02.0
<b>How many more hours in &lt; mode&gt; fishing will you have your gear IN THE WATER today?</b>		
*E4. Shore Additional Hours	For SHORE anglers who are not finished fishing. Record the amount of time the angler intends to continue fishing. Round-off this time to the nearest tenth of an hour. See ASF for tenth hour to minutes conversion table.	<blank>= Boat angler HH.H decimal hours to nearest tenth hour leading zeros required. Examples: 2 hr 0 min = 02.0 2 hr 15 min = 02.3 2 hr 45 min = 03.8
Q. Is there a limit to the number of incomplete shore anglers? A. The following 50/50 rule applies for incomplete shore interviews: 1) Do not conduct more than 50% of your interviews as incomplete trips and 2) The angler must have completed at least half of his anticipated fishing time before you can do an incomplete trip interview. Q. On cluster assignments does the 50/50 rule apply for each new site visited? A. No, the rule applies to the entire assignment by mode of fishing.		
<b>FISH BOX</b>		
<b>Were you fishing for any particular kinds of fish today?</b>		
*F1. Primary and Secondary Target Species	Record the common name of the primary and secondary species the angler says s/he was attempting to catch. If the target species was "nothing" or "anything", code the species with a single right-justified "0". If the angler was fishing for a general fish group (listed at right), use the appropriate single-digit code. Common name entered should be the one on the species code list, <u>not an angler nickname</u> .	No=Anything Yes: <b>What kind of fish were you primarily and secondarily fishing for?</b>  See "Appendix A: Species Codes" for the 5-letter alpha species codes and three digit codes. Use these codes for general large fish groups: 0 = Anything/nothing 1 = Bottom fish 2 = Sharks 3 = Surface fish 4 = Tuna (not mackerel)
Q. Anglers frequently report that they are targeting "fish" or "whatever the boat goes for" when interviewed on party boats, what is the target? A. In such cases, the Sampler may determine the target species by asking the captain or crew what the trip is targeting. NOTE: Record the species the angler says he or she was attempting to catch at the beginning of the trip. If anglers will tell you what they caught you should ask if that		

FIELD	INSTRUCTIONS	CODES AND FORMATS
	was what they were intending to catch. Q. What do I code for primarily targeting shellfish and they caught a fin-fish? A. Code the gear is used to capture the finfish, for example, 8=spear or 7=trap and switch the targets so that finfish is primary and shellfish is secondary.	
<b>Did you catch any fish while you were &lt; mode&gt; fishing that are not here for me to look at?</b>		
*F2. Reported or Unavailable Catch	Type 2 catch for this angler only on back. Record whether or not the angler reported unavailable catch that he landed himself.  	1 = Yes 0 = No  No: Probe: <b>any thrown back or used for bait?</b> Yes: Complete Type 2 records by asking; SPECIES: <b>What type of fish did you catch?</b> NUMBER: <b>How many did you land?</b> DISPOSITION: <b>What did you do with them?</b> Refused: Terminate and code STATUS=key refusal
Q. What if the anglers tell me what they landed when I ask about unavailable catch? A. Try to keep your questions in order even when anglers anticipate your questions. When interviewing an angler group sometimes one person will try to answer for everyone or everyone will answer at once. It is recommended that you politely interrupt them and explain what you are asking, rather than attempting to record data out of order. Q. Can I group type 2 catch? A. No. However, you may use a 'group average' for the type 2 catch where the type 2 fish may be evenly distributed to individual anglers.		
<b>Did you catch any fish while you were &lt;specify mode and area&gt; fishing today that I might be able to look at?</b>		
*F3. Examined and Available Catch	Type 3 records on back of this form. Record whether or not the angler landed catch that is available for examination and the disposition of the catch. The sampler must count and identify these fish himself. If that is not possible, the fish are recorded as Type 2 (unavailable) catch.	1 = Yes 0 = No  Yes: Complete Type 3 by asking; DISPOSITION: <b>What do you plan to do with the majority of these fish?</b> Refused: Terminate and code STATUS=key refusal
<b>How many anglers including you have their catch here?</b>		
*F4. On This Form # of contributors	If the angler's Type 3 fish are recorded on the back of this form, record the number of anglers who have their catch here. Please don't include anyone who did not catch anything (they get their own form).	If this item is not applicable, leave it blank

FIELD	INSTRUCTIONS	CODES AND FORMATS
<p>Q. What if there are three anglers with group catch and a fourth angler who caught nothing, do they all get counted?</p> <p>A. No, do not include that angler here. They can all get their own interviews with on being a group catch from. However, if you do not have time to interview all four anglers, it is more accurate to include the angler with no catch in the catch group. When this happens, remember not to group type 2 catch, it is only for one angler</p> <p>Q. Anglers can usually identify his or her own 'trophy fish' but cannot separate the rest of their catch. What if the anglers don't know who caught the 'spare fish'?</p> <p>A. Group catches of other species on trips for a prime target species such as halibut or some other 'trophy fish'. All the fish must be listed as a group catch, including the 'trophy fish' and 'spare fish'.</p>		
*F5. On Other Form interview ###	If the angler's Type 3 fish are recorded on the back of another angler's form, record the interview number where the fish are recorded.	002 = second interview (must have leading zeros) If this item is not applicable, leave it blank
<b>BACK OF FORM</b>		
*Species	Write the fish name on the line and fill in the 5-letter species code. The fish name must match the code. In coding Type 2 and 3 records, the main difference between the two is type 2 fish can't be examined for species, counted or (normally) measured.	*Black Rockfish RFBK See species codes in the back of this manual.
<p>Q. What if someone refuses to show me their fish, is that a refusal?</p> <p>A. If an angler tells you they caught something but refuses to show it to you, they've still reported their catch so it would be considered type 2. Since the fish "were" reported, as opposed to refused, this would still be considered a good interview. However, if a person not only refuses to "show" you their catch but also refuses to tell you what they caught, it would be considered that they refused the key item "number of type 2 fish".</p>		
<b>Type 3 Records</b>		
*Number of Type 3 Fish	Enter the total number of fish for each species. Each species can have only one number. These are fish that were actually examined and enumerated (were able to verify). In this case, we want to know the total count (of a species) that was actually observed by the Sampler. Although there may be more than one disposition for that particular species, we only want the "majority" disposition (if one was used for bait, two were thrown back dead and five were eaten, code that species as disposition 3).	1=one fish Arrows can show duplicate numbers
<p>Q. What if someone has a huge number of bait fish (50+)?</p> <p>A. If you encounter a large number of fish and you don't have time to count every one, you or the angler may estimate the count. However, since it's an estimate, you</p>		


FIELD	INSTRUCTIONS	CODES AND FORMATS
<p>must list the catch as type 2. You can still measure a random sample of 10 fish in this case. List the 10 measured fish in type 3, and the rest of the estimated catch as type 2. You should randomly choose 10 of the fish to sample by doing a blind grab (or systematic sample) from the angler's bucket or sack.</p>		
Length	Measure up to 10 fish of each available species. If there are more than 10 individuals of a species, the 10 fish selected for measuring must be representative of the whole sample. If no lengths or weights are taken, only 1 line is required for the species and interview status is not affected.	Measure fork lengths (millimeters) Leading blanks are acceptable, as in _310 mm 
<p>Q. What if an angler throws back a fish I just measured?</p> <p>A. Change the disposition. However, if it is thrown back alive (after measuring), the fish should never be listed as or included with type 3 records. List these as Type 2 records and put measurements on discard measurements form.</p>		
Weight	Weigh fish if time allows with priority given to rare and management species. If <u>salmon tag</u> number is provided, code in the weight field. Do not weigh salmon with tag numbers. If the fish is a non-recoverable specimen, include an "NRS" at the end of the 5-digit salmon tag number (74395N).	Measure weight in kilograms. Right justify with zeros if necessary, as in _9.10 kg. Leading blanks are acceptable.
*Type 3 Disposition	If there is more than one disposition for a single species, code for the majority. There can only be one disposition per species (in contrast to Type 2 records).	3 = Plan to eat 4 = Using for bait 5 = Plan to give away 6 = Plan to throw away 7 = Some other purpose (specify)
<p>NOTE: You should also get in the habit of probing for answers to this question, since anglers typically forget about different species. For example, if the angler tells you he or she threw back 5 mackerel, ask if they used any for bait, or gave some away. When done with one species, always ask if they caught anything else they threw back, etc.</p>		
Fish Sex	Record the sex for species specified by your Supervisor.	M = Male F = Female T = Transitional sheephead <blank> = unknown
<b>Type 2 Records</b>		
*Number of Type 2 Fish	Enter the total number of fish for each species and disposition. These are fish that are unavailable for identification or enumeration Each record is listed by "disposition" (in other words, we want to know how many of a species were thrown back, or kept, or given away, etc).	1= one black rockfish filleted to eat 2= two black rockfish thrown back alive.

FIELD	INSTRUCTIONS	CODES AND FORMATS
*Type 2 Disposition	If there is more than one disposition for a single species, you may split the number of fish by species for each disposition. Note that some Type 2 dispositions are not available to use for Type 3 catch.	1 = Thrown back alive 3 = Plan to eat 4 = Using for bait 5 = Gave away 6 = Thrown away dead 7 = Some other purpose (specify)
<b>BOATS BOX</b>		
*B1. Interview # of first boat angler	Record the interview number of the first angler interviewed on this boat. If this is the first angler of the boat record the value in Q4. "Interview #" and fill in the rest of the boats section. If this is not the first angler record the value in Q4 from the first angler's form and skip the rest of this box.	3 = third form of assign. leading zeros not required First boat angler: Record the interview number on this form and fill in B2-B12. Next boat angler: Record interview number of the FIRST boat angler and skip B2-B12. Shore: <blank> (skip B2-B12)
<i>Note: The remaining boats box questions are for the first boat angler.</i>		
<b>How many people fished on your boat today?</b>		
*B2. # of anglers in boat	Number of anglers in this boat who fished. <i>NOTE: For PC mode this question is asked of the captain or crew).</i>	NN=Eligible anglers 3= three anglers fished in the boat
<b>Is your boat trailer in the main parking area?</b>		
*B3. PR2 trailer in count area	(PR only) Determine if the boat had a countable trailer. This question refers to the area(s) covered by the trailer count. You may need to probe to explain the 'main parking area' and determine if the boat was parked there.	0 = No 1 = Yes K = Kayak <blank> = PC boat
Q. What if the boat trailer was not in the count, should I change the count? A. No, do not change the count. The answer to this question is used to do that. Q. What if the boat did not have a trailer, like from a car top rack, should I be counting those in the counts? A. No, do not count roof racks, PWC trailers, kayak racks or any other non-trailer devices in the counts. This question is all that is needed for PR2 counts.		
<b>When did you launch your boat?</b>		
*B4. Departure time	Determine time boat launched. If this is refused or unknown, terminate interview.	2400 format 1325 = 1:25pm  Time launched today: 0000 to 2359 (skip B4) Not today: Go to B4 Don't know: 9998 (key refusal) Refused: 9999 (key refusal)
Q. Is it possible to omit this or use wet gear hours to estimate it? A. No, this is a key question. Boat hours directly impacts the effort estimates for		

FIELD	INSTRUCTIONS	CODES AND FORMATS
PR2. Fishing time is less than trip time, so using wet gear hours will underestimate effort and catch. Trailer hours are multiplied by the mean of boat hours.		
<b>What day was that?</b>		
*B5. Departure date	If boat did not launch today, record departure date. If this is refused or unknown, terminate interview (key refusal). If same day, leave blank.	MMDD format 0704 = July 4 <sup>th</sup> Leading zeros required <blank> = same day Month and day: 0101 to 1231 Don't know: 9998 (key refusal) Refused: 9999 (key refusal)
<b>Was most of your fishing three miles or less from land or more than three miles?</b>		
*B6. Distance from any Shore	If the fishing was conducted from a boat on the ocean, indicate how far the boat was from shore. Shore includes island shores. If the boat was inland, this is not applicable.	1 = Less than 3 miles 2 = More than 3 miles, skip B7 <blank> = inland waters(N/A)
NOTE: On party or charter boats you can get distance from the boat captain, so there is no need to ask the anglers. NOTE: Shore means any shore, not just the mainland, so if the angler fished one of the islands the question should be answered with respect to the distance from the island that was fished. For all other modes this question should be left blank for not applicable.		
<b>Were you fishing within 3 miles of an island?</b>		
B7. California Island	If the boat was within 3 miles of an island, code the island number.	Island code = 01-10  1=Coronado 2=San Clemente 3=Catalina 4=Santa Barbara 5=San Nicolas 6=Anacapa 7=Santa Cruz 8=Santa Rosa 9=San Miguel 10=Farallon
		
*B8. CPFV boat permit number	The CDFG vessel permit ID number for the passenger fishing vessel. First PC angler from boat. Not the Vessel ID.	NNNNNN = Vessel number. Right justified and exclude leading zeros. <blank> = Not a PC boat
*B9. CPFV boat name	The Passenger fishing boat name first PC angler from boat.	"Seagull"
<b>LOCATION BOX</b>		
L1. Asked Fishing Location	You attempt to get the location of catch or fishing. If this box is coded "0" or "3", leave all remaining boxes in this outlined boat location section blank.	<blank>=shore angler 0=No (too busy) 1=Yes, complete L2-L7 3=Same as leader skip L2-L7 (leader must have a location)

FIELD	INSTRUCTIONS	CODES AND FORMATS
<p>Q. This can take a lot of time, can I skip this question?</p> <p>A. On assignments with high effort "pulse" activity the Sampler may skip this series of questions during the "pulse"; i.e. most anglers are completing their trips at the same time, reducing the chance of completing the assignment with enough good interviews.</p> <p>Q. Is it necessary to ask this when observing a CPFV onboard?</p> <p>A. Do not ask aboard a CPFV. Code this as 0=No on all forms unless sampling dockside. You will be observing much more location detail aboard the vessel.</p> <p>Q. What if the angler wants to know why we are asking this?</p> <p>A. Explain that we are getting harvest locations so fishery managers can analyze fishing areas. The data will contribute to the biological knowledge of the fishes. Individual trip locations will not be reported to the public. Do not use explanations that include words and phrases like "reef protection", "harvest restrictions" or "area closures" which can cause a non-response bias. The wording has been carefully crafted to reduce the chances of a refusal.</p>		
<p><b>What was the location of the majority of your &lt;catch or fishing&gt;?</b></p> <p>NOTE: The PRIORITY for the location is for the &lt;1&gt; type 3 fish, &lt;2&gt; type 2 fish, or &lt;3&gt; majority of fishing time.</p>		
L2. Location	<p>This is based on the best available information for the location as communicated to the Sampler by the angler. Code these boxes when attempting to get a location from the angler (north latitude and west longitude or block-box).</p> <p>Use decimal point to show decimal degrees if minutes or seconds not provided.</p>	<p>Location provided: Code boxes</p> <p>Unknown: Leave Blank code L3 = '8', (skip TO L5, <b>Ask depth</b>)</p> <p>Refused: Leave Blank, code L3 = '9', (skip TO L5, <b>Ask depth</b>)</p>
<p>Q. Do I code where the majority of the time was spent fishing?</p> <p>A. Only if they have NO catch since this may be different than where the catch was located.</p> <p>Q. What if the angler asks if returned fish are included?</p> <p>A. Tell them we want the location for the fish they have here (type 3 fish). If the angler has no fish here, ask the angler for the location of any fish they can report under type 2. If the angler did not catch any fish, get the location of fishing.</p> <p>Q. What if they fished in a huge area while trolling?</p> <p>A. Code the block without a box number or, if not on a block map, code the grid size up to 10 minutes. If over 10 minutes, code the location format as 8=Don't know</p>		
L3. Location Format	<p>Code the location boxes using one of the predefined formats specified. Record location to best available precision using either maps with coordinates, or reported latitude and longitude coordinates (GPS).</p> <p>Do <u>not</u> code two blocks together as in BBB-BBB. Only one block per entry cell is allowed.</p> <p>Do <u>not</u> code two boxes together with a grid as in BBB-bb-bb+g. A grid can only be with a single</p>	<p>1=Degrees minutes (optional "grid")</p> <p>2=Agency site code</p> <p>3=Degrees, minutes &amp; seconds (GPS)</p> <p>4=Decimal degrees (GPS)</p> <p>5=CDFG Block and box</p> <p>8=Don't know (get depth)</p> <p>9=Refused (get depth)</p> <p>D=degrees, M=minutes, S=seconds, G=grid size, B=block, b=box, N=site #</p> <p>Degrees, min - &lt;grid&gt;:</p>

FIELD	INSTRUCTIONS	CODES AND FORMATS
	<p>box.</p> <p>Do not enter a box-grid more than 9 miles across, blocks are 10 miles.</p>	<p>(DDMM / DDMM+GG or DDMMMM / DDMMMM)</p> <p>Site code: (NNNN)</p> <p>Degrees, min, sec: (DDMMSS / DDMMSS)</p> <p>Decimal degrees: (DD.DDDD / DD.DDDD)</p> <p>Block – box + grid: BBB-bb &lt;+g&gt; or no grid: BBB-bb-bb-bb or inland BBB-bbb-bbb</p>
<p>Q. The angler can't read the map, now what?</p> <p>A. If you attempt to get the location, but discover after one minute of working at it that due to communication problems it will take too much time and cause you to miss other anglers you intended to interview, you may code 8=Don't know and exit the box leaving the remaining questions blank.</p> <p>Q. What if the angler has a secret spot?</p> <p>A. If you attempt to get the location and after explaining the importance and confidentiality of the location information the angler refuses to comply with your request, code Asked Location 1="Yes" and code Location Format 9=Refused and exit the box leaving the remaining questions blank.</p> <p>Q. What if the angler gives me loran coordinates or decimal minutes?</p> <p>A. If location is not in a normal format, you may put the coordinates in the margin, but they will need to be converted to another format by your Supervisor.</p>		
<p><b>L4. ANGLER GAVE LOCATION USING: How was location determined?</b></p>		
Map	Angler pointed at a map	Check box
GPS	Angler reported coordinates	Check box
Site name	Angler provided a location name	Check box, record site name in space provided below and code L2 and L3
<p>Q. What location do I record when the angler just gives a place name?</p> <p>A. You must verify the location by showing the angler a map since the name may be misunderstood and they fished somewhere else. You must record a location in L2...</p>		
<p><b>What was the bottom depth in feet at that location?</b></p>		
L5. Bottom depth	<p>Record the bottom depth in feet reported by the angler. This is not the fishing depth of the gear. The bottom depth can be checked with maps if depth contours or soundings are printed on the map. This item is can be used to estimate mortality by depth for released bottomfish.</p>	<p>NNNN=depth in feet</p> <p>&lt;blank&gt;=Don't know or Refused, skip to L7</p> <p>100 meters = 328 feet.</p> <p>1 fathom = 6 feet.</p>
<p><b>Did you use a depth finder at that location?</b></p>		
L6. Depthfinder	Angler had used a depth finder to monitor bottom depth while fishing at the location of catch	<p>0=No depthfinder</p> <p>1=depthfinder used</p> <p>&lt;blank&gt; = no depth</p>
<p><b>Were all of your fish caught at that location / depth?</b></p>		
L7. All catch from location	Ask angler if all of the catch was harvested at the location specified. If only some of the harvest was caught at the	<p>0=Some catch</p> <p>1=Yes, All catch from location</p> <p>8=No Catch</p>

FIELD	INSTRUCTIONS	CODES AND FORMATS
	location, you must ask about the location of catch for each species in the type 2 and each fish in the type 3 records.  If the angler cannot tell you which fish were caught at the location, change the response to 1=don't know and leave all fish record location boxes blank.	Refused or Don't know are coded as '1'.  (If coded as '1' leave all the fish record location check boxes blank) No: ASK; Can you tell me which fish were caught at that location?  FISH RECORDS: Check location boxes for species where majority of fish were caught at that location.
Q. What if only some of the type 2 fish were from the location? A. The angler must be able to report ALL the reported (type 2 fish) by species, just like the disposition, by the majority of the fish.		
Type 2 Locs	The angler must tell you which species (majority) were caught here to use the type 2 location check boxes on the back of the form. Do not attempt to split records by number of harvested fish at location.	Check box for species if majority caught at this location.
Q. What if the angler can't tell which species where caught here? A. If the angler cannot determine which fish were caught at this location (or refuses to say), then leave all the location check boxes blank for the type 2 (AND TYPE 3!) records for all species.		
Type 3 Locs	Check the check boxes for the fish that were caught at the harvest location. Note: It may be helpful to ask which fish were not caught at the harvest location.	Check the location check boxes for each fish caught at that location.
Q. What if only some of the type 3 fish were from the location? A. Check applicable boxes. However; when more type 3 fish of a species were counted than measured, then leave all the location boxes blank (both type 2 and type 3).		
Fish sex	 Record the fish sex for those species that have external characteristics.	M=male F=female T=Transitional sheephead <blank>=Undetermined
<b>ANGLER BOX</b>		
<b>What is your county of residence?</b>		
*A1. Residence County or State	Enter the 3-digit code for the county in which the angler resides. If the angler does not know their county, enter the name of their city in the space	For out of state, code postal code of state. Foreign country, code country code. If California county

FIELD	INSTRUCTIONS	CODES AND FORMATS
	provided. Check the "city" box. If out of state, enter the 2-digit code for the state in which the angler resides. If the angler resides outside of the U.S, enter the appropriate country code.	unknown, ask <b>"What city or town do you live in?"</b>  ORA = Orange county AZ = Arizona CA = CA county unknown FIE=Ireland <blank>=Don't know or refused  See the geographic codes in the back of the manual.
<b>What is the ZIP Code of your residence?</b>		
A2. Residence ZIP Code	Enter the angler's 5-digit ZIP code. If the angler does not know their ZIP code, enter the name of their city and street in the space provided.	If zip unknown, ask <b>"What city or town do you live in?"</b> Use these single digit left justified codes for exceptions: 8 = Unknown or Not applicable 9 = Refused
<b>What type of California fishing license are you using today, annual or daily?</b>		
A3. License type	Record the type of California license this angler possesses for this trip. Under age anglers may have a license	0=No License 1=Annual or Lifetime 2=Daily (ask A4.) <blank>=Don't know or refused to say
<b>How many days?</b>		
A4. Daily Days	For daily licenses, enter the number of fishing days the license was issued as.	Example: 10 = 10 day license
<b>Not counting today, within the past 12 months, how many days have you gone 'salt water sport fin-fishing' in this DISTRICT, or from a boat launched in this DISTRICT?</b>		
A6. Days Saltwater Sportfished in Last 12 Months	<u>Not counting today</u> , enter the number of days the angler says s/he went saltwater sport fishing in California during the last 12 months. Maximum number would be 364 days if the angler fished every day. Angler may need some help estimating his/her trips.	1-365 days <blank> = Don't know or refused to say
Q. Are fishing trips into Mexican waters included? A. Yes, if the angler boarded the boat in the U.S. Q. How do I code this when the angler give an average number of trips? A. If the angler says he or she averages twice a week, reiterate this by asking if 104 sounds correct.		
<b>Not counting today, how many days within the past two</b>		

FIELD	INSTRUCTIONS	CODES AND FORMATS
<b>months?</b>		
A7. Days Saltwater Sportfished in Last 2 Months	<b>Not counting today</b> , enter the number of days the angler says s/he went saltwater sport fishing in California during the last 2 months. Maximum number would be 62 days (in Jul.-Aug.). Cannot be more than A6 above.	1-62 days <blank> = Don't know or refused to say
Q. What if the angler gives me a number that is greater than the total trips in 12 months? A. Ask it again to be certain the angler understands the different time periods. If you are still unable to get a usable answer skip it and code it as a status 2 interview.		
<b>In the event that my Supervisor wishes to verify that I have been conducting interviews here today, may I have your name and "a" contact phone number?</b>		
A8. Full Name	Enter the angler's first and last name.	
A9. Gender	Enter the gender of the angler. Example: "Sue = F"	M = Male F = Female 8 = Unknown
A10. Phone Number	Enter the angler's home telephone number, including Area Code. Indicate the best time to call in space provided. If using one of the codes listed at right, place this code in first box. Exceptions: If an angler's residence does not have a phone and the angler cannot provide a phone number, the status is not affected.	Use these single digit left justified codes for exceptions: 7 = Under age 16 0 = No phone 8 = Unknown 9 = Refused
Q. Do we ever call an angler about their field interview? A. Yes, we call anglers about their interviews. A random sampling of one out of ten interviewed anglers is called to determine how the interview went. Higher or lower calling rates may be used, depending on observations of the Sampler, the condition of their forms or statistical analysis of the data on the forms. Interviews collected by newly hired samplers, Sampler interviews with below average response rates or interviews with mismatched demographic data are all subject to increasing rates of validation. Validation telephone calls may be conducted by your Supervisor, your supervising agency, PSMFC, NMFS or their telephone data collection contractors.		



### Common Errors

The following general tips and examples for the angler form address the most common error situations. The most common problems mainly fall into; 1) leaving things blank or not blank inappropriately, 2) coding values incorrectly, and 3) logic errors among items or forms.

### Specific Editing Checks

- Items F2 and F3 must be coded with a "1=yes", if there are those types of fish recorded on the back.
- Additional "boat mode" hours on the angler form will cause the interview to be unusable since the angler is not eligible. For "shore mode" anglers, check that the angler has the same or less additional hours than already fished (50% rule)
- The days saltwater sportfished in the last 2 months must be less than or equal to days fished in the last 12 months.
- Check gender against the first name.
- Make sure that disposition codes are appropriate for the type of record: type 2 or 3 on the angler form.
- Make sure x-effort items are complete for sampling at sites where the target mode includes MM or PR2. Conversely, all BB and PC interviews leave x-effort blank.
- Refusals and language barrier angler counts must appear only on forms that are of the same mode.
- Incomplete MM angler trips (angler still fishing) are conducted only after the stop count of MM anglers.
- Interview times are all unique and cannot be equal to the arrival, start, stop or departure counts (on the ASF).
- For shore mode anglers (MM and BB), the 'boats' and 'location' areas (items "B" and "L") are left blank. Conversely, they are always coded with something for boat mode anglers.
- Anglers on the same boat always have the same "boat leader" interview number coded in item B1.
- If angler's catch is on other form, the interview number containing the catch must be coded in item F5.

### Leave Blank Coding

The angler form is structured into boxes of data so that some may be left blank depending on which survey is being used. Below is a list of common situations for which you will leave boxes blank followed by an example form showing all potentially blank boxes.

#### BB INTERVIEWS:

- A-E (top of form) blank
- B1-B9 blank
- L1-L7 blank.

#### PC INTERVIEWS:

- A-E (top of form) blank
- B3 blank

## PC BOAT LEADER

- B1. Boat leader's interview #
- B2-B9 complete
- L1=0 (not asked) Complete if sampled dockside
- L2-L7 blank if sampled onboard. Complete if sampled dockside

## PC BOAT FOLLOWER

- B1. Boat Leader's interview number.
- B2 thru B11: blank.
- L1 =3 (same as leader) or =0 (not asked)
- L2=L7 blank

## PR2 INTERVIEWS:

- A-B (top of form) complete unless MM mode not sampled concurrently.
- C-E (top of form) complete unless PR2 mode not sampled concurrently...

## PR2 BOAT LEADER

- B1-B7 complete
- L1-L7 complete

## PR2 BOAT FOLLOWER

- B1 Boat Leader's interview number
- B2 thru B9: blank.
- L1 =3 (same as leader) or =0 (not asked)
- L2-L7 blank

### TYPE 2 AND 3 CODING (and discard form)

- Location or fish sex; blank = not applicable
- Species, number of fish or disposition; blank = same as above

### Leave Blank Example Form

Below is a form with shaded boxes that indicate which items my optionally be left blank

**ELIGIBILITY SCREENING:** Completed a sport fishing trip in <one fishing mode> in U.S. marine waters for finfish?  
**Exceptions:** 50% or more of a MM or BB trip. Non-fish trips with a caught finfish. Mexican water boat trips.

**PRIVACY ACT:** This study is being conducted in accordance with the privacy act of 1974. You are not required to answer any question you consider to be an invasion of your privacy. Use questionnaire for correct wording.

SPECIAL FISHERY CODE		Pg # of #		1=Yes 0=No 0123456789		* Key Question (for good interview)	
<div style="border: 1px solid black; padding: 2px;"> <div style="display: flex; justify-content: space-between;"> <span>AMM Anglers skipped</span> <span>B.M Anglers that started fishing</span> </div> </div>				<div style="border: 1px solid black; padding: 2px;"> <div style="display: flex; justify-content: space-between;"> <span>C. # PR2 Boats TR Launched</span> <span>D. Non-Fishing TR</span> </div> </div>		<div style="border: 1px solid black; padding: 2px;"> <div style="display: flex; justify-content: space-between;"> <span>E. Missed TR</span> </div> </div>	
<div style="display: flex; justify-content: space-between; font-size: small;"> <span>Shore boat (PR2 boat)</span> <span>Shore boat (PR2 boat)</span> <span>Shore boat (PR2 boat)</span> </div>							
<b>CRFS 2007 ANGLER INTERVIEW FORM</b>							
<div style="border: 1px solid black; padding: 2px;"> <div style="display: flex; justify-content: space-between;"> <span>1. Assignment No.</span> <span>2. * Sampler</span> </div> </div>				<div style="border: 1px solid black; padding: 2px;"> <div style="display: flex; justify-content: space-between;"> <span>B1. Interview # of first boat angler.</span> </div> </div>			
				<div style="border: 1px solid black; padding: 2px;"> <div style="display: flex; justify-content: space-between;"> <span>B2. # Anglers in boat</span> <span>B3. *PR Trailer 0=no 1=yes in Count? K=ayak</span> </div> </div>		<div style="border: 1px solid black; padding: 2px;"> <div style="display: flex; justify-content: space-between;"> <span>B5. * Deprt. Date</span> </div> </div>	
<div style="border: 1px solid black; padding: 2px;"> <div style="display: flex; justify-content: space-between;"> <span>3. Month/Day</span> </div> </div>				<div style="border: 1px solid black; padding: 2px;"> <div style="display: flex; justify-content: space-between;"> <span>B4. Departure Time? (if prior day record date &gt;&gt;)</span> </div> </div>			
<div style="border: 1px solid black; padding: 2px;"> <div style="display: flex; justify-content: space-between;"> <span>4. Interview #</span> </div> </div>				<div style="border: 1px solid black; padding: 2px;"> <div style="display: flex; justify-content: space-between;"> <span>B6. Distance from any shore? 1-&lt;3 mi. Code if island &gt; 2-more than 3 mi.</span> </div> </div>		<div style="border: 1px solid black; padding: 2px;"> <div style="display: flex; justify-content: space-between;"> <span>B7. &lt;3 mi. CA Island</span> </div> </div>	
<div style="border: 1px solid black; padding: 2px;"> <div style="display: flex; justify-content: space-between;"> <span>5. Time interview started (24 Hr:min)</span> </div> </div>							
<div style="border: 1px solid black; padding: 2px;"> <div style="display: flex; justify-content: space-between;"> <span>6. Site Name</span> </div> </div>							
<div style="border: 1px solid black; padding: 2px;"> <div style="display: flex; justify-content: space-between;"> <span>7. Charter Boat (group paid), 8-Private Rental boat</span> </div> </div>							
<div style="border: 1px solid black; padding: 2px;"> <div style="display: flex; justify-content: space-between;"> <span>8. Status: 0=Non-angler 1=Complete 2=Non-key ret</span> </div> </div>				<div style="border: 1px solid black; padding: 2px;"> <div style="display: flex; justify-content: space-between;"> <span>B8. CPFV Boat Permit Number</span> </div> </div>			
<div style="border: 1px solid black; padding: 2px;"> <div style="display: flex; justify-content: space-between;"> <span>9. Mode: 1=Per/Dock, 2=Jetty/Breaker ater, 3=Bridge/Causeway w/, 4=Other Structure, 5=Beach/Blank, 6=Party Boat (per head), 7=Charter Boat (group paid), 8=Private Rental boat</span> </div> </div>				<div style="border: 1px solid black; padding: 2px;"> <div style="display: flex; justify-content: space-between;"> <span>B9. CPFV Boat Name:</span> </div> </div>			
<div style="border: 1px solid black; padding: 2px;"> <div style="display: flex; justify-content: space-between;"> <span>10. Status: 0=Non-angler 1=Complete 2=Non-key ret</span> </div> </div>				<div style="border: 1px solid black; padding: 2px;"> <div style="display: flex; justify-content: space-between;"> <span>L1. BOATS: Asked Fishing Location? (1=Yes, 0=No, 3=Same as First).</span> </div> </div>			
<div style="border: 1px solid black; padding: 2px;"> <div style="display: flex; justify-content: space-between;"> <span># of Initial Refusals</span> <span># Language Barriers</span> <span># of Key Refusals</span> </div> </div>				<div style="border: 1px solid black; padding: 2px;"> <div style="display: flex; justify-content: space-between;"> <span>L2. Location(s)</span> </div> </div>		<div style="border: 1px solid black; padding: 2px;"> <div style="display: flex; justify-content: space-between;"> <span>L5. Bottom Depth(s) [feet]</span> </div> </div>	
<div style="border: 1px solid black; padding: 2px;"> <div style="display: flex; justify-content: space-between;"> <span>E1. Fishing Effort Area: Ocean (or open bay), River, Bay or harbor, S.F. Bay, Mexico</span> </div> </div>				<div style="border: 1px solid black; padding: 2px;"> <div style="display: flex; justify-content: space-between;"> <span>L3. Format: 1=Degrees' minutes' + grid size 2=State site code# 8-DK 9=RE 3=Degrees' mins' sec# 4=Decimal degrees' 5=CGFS Book Box &lt;grid size&gt; 6. B-b, B-b-b, B-b-b-b, B-b+g</span> </div> </div>		<div style="border: 1px solid black; padding: 2px;"> <div style="display: flex; justify-content: space-between;"> <span>L6. Depthfinder used?</span> </div> </div>	
<div style="border: 1px solid black; padding: 2px;"> <div style="display: flex; justify-content: space-between;"> <span>E2. Gear 1=Hook &amp; line 2=Dip net 3=Cast net 8=Spear 9=Hand</span> </div> </div>				<div style="border: 1px solid black; padding: 2px;"> <div style="display: flex; justify-content: space-between;"> <span>L4. Angler gave location using: <input type="checkbox"/> Chart <input type="checkbox"/> GPS/Loran <input type="checkbox"/> Site name</span> </div> </div>			
<div style="border: 1px solid black; padding: 2px;"> <div style="display: flex; justify-content: space-between;"> <span>E3. Wet Gear hours fishing in above mode?</span> </div> </div>				<div style="border: 1px solid black; padding: 2px;"> <div style="display: flex; justify-content: space-between;"> <span>Fishing Site Name (Record code(s) at L2):</span> </div> </div>			
<div style="border: 1px solid black; padding: 2px;"> <div style="display: flex; justify-content: space-between;"> <span>E4. SHORE trip add'l hours. 0=Complete</span> </div> </div>				<div style="border: 1px solid black; padding: 2px;"> <div style="display: flex; justify-content: space-between;"> <span>L7. All catch from this location? 1=yes, 0=no, then 8=no catch</span> </div> </div>			
<div style="border: 1px solid black; padding: 2px;"> <div style="display: flex; justify-content: space-between;"> <span>Trip must be 1/2 done. 50% of all interviews must be "complete".</span> </div> </div>				<div style="border: 1px solid black; padding: 2px;"> <div style="display: flex; justify-content: space-between;"> <span>ON THIS FORM</span> <span>ON OTHER FORM</span> </div> </div>			
<div style="border: 1px solid black; padding: 2px;"> <div style="display: flex; justify-content: space-between;"> <span>*F1. PRIMARY AND SECONDARY TARGET SPECIES 0=Anything 1=Bottomfish 2=Sharks 3=Surfscia 4=Tuna F = same as First boat angler</span> </div> </div>				<div style="border: 1px solid black; padding: 2px;"> <div style="display: flex; justify-content: space-between;"> <span>*F4. # of contributors</span> <span>*F5. Interview ###</span> </div> </div>			
<div style="border: 1px solid black; padding: 2px;"> <div style="display: flex; justify-content: space-between;"> <span>F2. Reported or unavailable catch (for this angler only)?</span> </div> </div>							
<div style="border: 1px solid black; padding: 2px;"> <div style="display: flex; justify-content: space-between;"> <span>F3. Examined and available (for this angler only)?</span> </div> </div>							
<div style="border: 1px solid black; padding: 2px;"> <div style="display: flex; justify-content: space-between;"> <span>A1. RESIDENCE? Country, State, County: F DK get City Name</span> </div> </div>				<div style="border: 1px solid black; padding: 2px;"> <div style="display: flex; justify-content: space-between;"> <span>A8. Name: Full name if &gt;15</span> </div> </div>			
<div style="border: 1px solid black; padding: 2px;"> <div style="display: flex; justify-content: space-between;"> <span>A2. Zip code? 8-Relaxed 9-DK (get city)</span> </div> </div>				<div style="border: 1px solid black; padding: 2px;"> <div style="display: flex; justify-content: space-between;"> <span>A9. Gender: 1=Male 2=Female</span> </div> </div>			
<div style="border: 1px solid black; padding: 2px;"> <div style="display: flex; justify-content: space-between;"> <span>A3. License Type: 0=None, 1=Annual, 3=Daily, record days</span> </div> </div>							

## Example Forms

MM

Cluster Site Mode shown in example: MMPR2

Example shows site with both MM and PR2 modes present.

X-effort must be provided (in all applicable modes) for all "complete" MM interviews.

PLEASE NOTE: If PR2 mode is "not" present, LEAVE ITEMS C, D & E BLANK.  
Do not put zeroes.

MMPR2	A. MM Anglers skipped	B. MM Anglers that started fishing	C. # PR2 Boats TR Launched	D. # Non-Fishing TR	E. Missed TR
02	05	00	01	00	00
CRFS 2007 ANGLER INTERVIEW FORM					
1	1. Assignment No.	195	2	YOU CAN ONLY LOG A FAILED INTERVIEW ATTEMPT IN ONE OF THESE THREE FIELDS IF THE ANGLER HAS COMPLETED THEIR FISHING TRIP. NO INCOMPLETE TRIPS CAN BE LOGGED AS SKIPPED, REFUSED, LANGUAGE BARRIERS OR KEY-ITEM REFUSALS.	
4	3. Month/Day	28	4	2. Interview #	
1	5. Time interview started (24 Hr:Min)	047	7	3. Only-Site Code	
7	3	307	7	307	
8. Site Name First interview at site					
1	9. Mode:	1-Per/Dock, 2-Jetty/Breakwater, 3-Bridge/Causeway, 4-Other Structure, 5-Beach/Bank, 6-Party Boat (per head), 7-Charter Boat (group paid), 8-Private/Rental boat	1	10. Status: 0-Non-angler 1-Complete 2-Non-key ref.	
0	1	0	0	0	
0	E1. Fishing Effort Area: Ocean (or open bay), River, Bay or harbor, S.F. Bay, Mexico	1	E2. Gear 1=Hook & line 2=Dip net 3=Cast net 8=Spur 9=Hand		
1	17	0	E3. Wet Gear hours fishing in above mode?		
0	E4. SHORE trip add'l hours. 0=Complete				
1	B O N P A Pacific Bonito				
2	None (Anything)				
*F1. PRIMARY AND SECONDARY TARGET SPECIES 0=Anything 1=Bottomfish 2=Sharks 3=Surface 4=Tuna F=same as First boat angler					
1	F2. Reported or unavailable catch (for this angler only)?	1	F3. Examined and available catch? If yes, code F4-5 >>	1	ON THIS FORM
1	A1. RESIDENCE? Country, State County: F DK get City Name	A8. Name:	Frank Jones		
9	A2. Zip code?	A6-7. Days Saltwater Sportfished in DISTRICT	1	A9. Gender: 1=Male 2=Female	A10. A Phone #
0	A3. License Type: 0=None, 1=Annual, 3=Daily, record days	1	A6... in last 12 Months?	9	7= age 16 0=No phones Foreign leave blank
0	A4. Daily License # Days	0	A7... in last ONE Month?	A10. A Phone #	

## MM (incomplete trip)

STOP COUNT HAS BEEN DONE AND STOP TIME RECORDED ON ASF:  
LEAVE ALL X-EFFORT BLANK.

MMPR2	A. MM Anglers skipped	B. MM Anglers that started fishing	C. # PR2 Boats TR Launched	D. # Non-Fishing TR	E. Missed TR
02	05	00	01	00	00
CRFS 2007 ANGLER INTERVIEW FORM					
1	1. Assignment No.	195	2	YOU CAN ONLY LOG A FAILED INTERVIEW ATTEMPT IN ONE OF THESE THREE FIELDS IF THE ANGLER HAS COMPLETED THEIR FISHING TRIP. NO INCOMPLETE TRIPS CAN BE LOGGED AS SKIPPED, REFUSED, LANGUAGE BARRIERS OR KEY-ITEM REFUSALS.	
4	3. Month/Day	28	4	2. Interview #	
1	5. Time interview started (24 Hr:Min)	047	7	3. Only-Site Code	
7	3	307	7	307	
8. Site Name First interview at site					
1	9. Mode:	1-Per/Dock, 2-Jetty/Breakwater, 3-Bridge/Causeway, 4-Other Structure, 5-Beach/Bank, 6-Party Boat (per head), 7-Charter Boat (group paid), 8-Private/Rental boat	1	10. Status: 0-Non-angler 1-Complete 2-Non-key ref.	
0	1	0	0	0	
0	E1. Fishing Effort Area: Ocean (or open bay), River, Bay or harbor, S.F. Bay, Mexico	1	E2. Gear 1=Hook & line 2=Dip net 3=Cast net 8=Spur 9=Hand		
1	17	0	E3. Wet Gear hours fishing in above mode?		
0	E4. SHORE trip add'l hours. 0=Complete				
1	B O N P A Pacific Bonito				
2	None (Anything)				
*F1. PRIMARY AND SECONDARY TARGET SPECIES 0=Anything 1=Bottomfish 2=Sharks 3=Surface 4=Tuna F=same as First boat angler					
1	F2. Reported or unavailable catch (for this angler only)?	1	F3. Examined and available catch? If yes, code F4-5 >>	1	ON THIS FORM
1	A1. RESIDENCE? Country, State County: F DK get City Name	A8. Name:	John Doh		
9	A2. Zip code?	A6-7. Days Saltwater Sportfished in DISTRICT	1	A9. Gender: 1=Male 2=Female	A10. A Phone #
0	A3. License Type: 0=None, 1=Annual, 3=Daily, record days	1	A6... in last 12 Months?	9	7= age 16 0=No phones Foreign leave blank
0	A4. Daily License # Days	0	A7... in last ONE Month?	A10. A Phone #	

BB

X-EFFORT (AS WELL AS BOAT AND LOCATION SECTIONS) SHOULD BE LEFT BLANK.

A. MM Anglers skipped	B. MM Anglers that started fishing	C. # PRZ Boats TR Launched	D. Non-Fishing Trip	E. Missed TR
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CFRS 2007 ANGLER INTERVIEW FORM					
* 1. Assignment No.	2 1 6	2. * Sampler			
* 3 2 4	3. Month/Day				
* 1	4. Interview #				
* 1 4 0 0	5. Time interview started (24 Hr:Min)				
* 1 3 - 2 0 6	7. Cnty-Site Code				
8. Site Name First interview at site					
* 5	9. Mode: 1=Pen/Dock, 2=Jelly/Breaker pier, 3=Bridge/Caisson pier, 4=Other Structure, 5=Beach/Bank, 6=Party Boat (no lead), 7=Charter Boat (group paid), 8=Private/Pontal boat				
* 10	Status: 0=None angler 1=Complete 2=Non-key net				
* 0	# of Initial Refusals	0	# of Language Barriers	1	# of Key Refusals
* S	E1. Fishing Effort Area: Ocean (or open bay), River, Bay or harbor, S.F. Bay, Mexico				
* 1 2	Gear 1=Hook & line 2=Dip net 3-Cast net 8=Spear 9				
* 2 5	E3. Wet Gear hours fishing in above				
* 5	E4. SHORE trip add'l hours. 0-Co				
Trip must be 1/2 done. 50% of all interviews must include shore trip.					
L5. Bottom Depth(s) [feet]					
L6. Depthfinder used?					
Check all that apply:					
GPS/Loran Site name					
Fishing Site Name (Record code(s) at L2):					
L7. All catch from this location? 1=yes, 0=no, then fish from Location on back. 8=no catch					
* F1 PRIMARY AND SECONDARY TARGET SPECIES 0=Anything 1=Bottomfish 2=Shark 3=Surface 4=Tuna F = same as First Boat angler					
* 0	F2. Reported or unavailable catch (for this angler only)?	0	F3. Examined and available catch? If yes, code F4-5 >>	ON THIS FORM ON OTHER FORM	
				* F4. # of contributors	* F5. Interview ##
C O N A1. RESIDENCE? County, State County: IF DK get City Name A6. Name: Noe Newman					
Full name i.e. -15					
A2. Zip code? A6-7. Days Saltwater Sportfished in DISTRICT					
1 A9. Gender: 1=Male 2=Female					
A3. License type: 0=None, 1=Annual, 3=Daily, record days A6... in last 12 months					
A4. Daily License # Days A7.... in last One Month?					
A10. A Phone # 7--age 15 8--No phones Foreign leave blank					

PC

## BOAT LEADER INTERVIEW

X-EFFORT SHOULD NEVER BE CODED ON PC MODE

<b>A. MM Anglers</b> skipped	<b>B. MM Anglers</b> that started fishing	<b>C. # PR2 Boats</b> TR Launched	<b>D. Non-Fishing TR</b>	<b>E. Missed TR</b>
---------------------------------	----------------------------------------------	--------------------------------------	--------------------------	---------------------

<b>CRFS 2007 ANGLER INTERVIEW FORM</b>		<b>99...8 = Don't know (DK) &lt;blanks&gt; = Not Appl. (NA) 99...9 = Refused (RE)</b>	
<div style="display: flex; justify-content: space-between;"> <div> <b>1. Assignment No.</b> 2 7 9         </div> <div> <b>2. * Sampler</b> </div> </div> <div style="display: flex; justify-content: space-between;"> <div> <b>5 2 1</b> </div> <div> <b>3. Mont</b> <b>MAKE SURE THESE NUMBERS ARE THE SAME</b> </div> </div> <div style="display: flex; justify-content: space-between;"> <div> <b>5</b> <b>4. Interview #</b> </div> <div> <b>1 0 1 0</b> <b>5. Time interview started (24 Hr:Min)</b> </div> </div> <div style="display: flex; justify-content: space-between;"> <div> <b>5 3</b> <b>6. Cnty-Site Code</b> </div> <div> <b>1 0 7</b> <b>7. Cnty-Site Code</b> </div> </div> <div> <b>8. Site Name</b>          First interview at site  <div style="text-align: center; border: 1px solid black; padding: 5px;"> <b>NO LEADING ZERO'S</b> </div> </div> <div> <b>9. Mode:</b> 1-Per Doc, 4-Other St, 7-Charter boat (group paid), 8-Hire rental boat  <b>10. Status:</b> 0-Non-angler 1-Complete 2-Non-key ret       </div> <div> <b>0</b> <b># of Initial Refusals</b> <b>0</b> <b># of Language Barriers</b> <b>0</b> <b># of Key Refusals</b> &lt;These must be in the mode of fishing above&gt;       </div> <div> <b>01. Fishing Effort Area:</b> Ocean Bay or harbor, S.F. Bay, M.  <b>E2. Gear</b> 1-Hook &amp; line 2-Dip net       </div> <div> <b>1 2</b> <b>E3. Wet Gear no</b>  <b>5</b> <b>E4. SHORE trip</b> </div> <div>         Trip must be 1/2 done. 50% of all interviews must be "complete".       </div>	<div> <b>5</b> <b>B1. Interview # of first boat angler.</b>          (B2-B11 - First Boat Angler ONLY)       </div> <div> <b>3 2</b> <b>B2. # Anglers in boat</b> </div> <div> <b>6 2 5</b> <b>B4. Departure Time?</b>          If prior day record date &gt;&gt;&gt;       </div> <div> <b>1</b> <b>B6. Distance from any shore?</b> 1-&lt;=3 mi. Code if Island &gt;&gt; 2-more than 3 mi.       </div> <div> <b>2 5 1 5 2</b> <b>B8. CPFV Boat Permit Number</b> </div> <div> <b>B9. CPFV Boat Name:</b> Chubasco       </div> <div> <b>0</b> <b>L1. BOATS: Asked Fishing Location?</b> (1=Yes, 0=NO, 3=Same as First).       </div> <div> <b>IF FISHING LOCATIONS WERE RECORDED ON AN ON-BOARD CPFV FORM, THEN YOU DO NOT HAVE TO ASK EACH ANGLER WHERE THEY CAUGHT THEIR FISH. INSTEAD, CODE L1 AS "0" (DID NOT ASK).</b> </div> <div> <b>L4. Angler gave location using:</b> <input type="checkbox"/> Chart <input type="checkbox"/> GPS/Loran <input type="checkbox"/> Site name       </div> <div> <b>Fishing Site Name (Record code(s) at L4):</b> THIS FORM HAS TYPE 3 CATCH FROM 2 ANGLERS       </div> <div> <b>L7. All catch in</b> <input type="checkbox"/> <b>also catch</b> </div>		

<b>*F1. PRIMARY AND SECONDARY TARGET SPECIES</b> 0=Anything 1=Bottomfish 2=Sharks 3=Surfboat 4=Tuna F = same as First Boat angler	
<b>F2. Reported or unavailable catch (for this angler only)?</b> 1	<b>F3. Examined and available catch? If yes, Code F4-5 &gt;&gt;</b> 2
<b>*F4. # of contributors</b>	
<b>*F5. Interview ##</b>	

<b>A1. RESIDENCE?</b> Country, State County: <input type="checkbox"/> DK City Name:	<b>A8. Name:</b> William Culver
<b>A2. Zip code?</b> 9 3 9 5 0	<b>A6-7. Days Saltwater Sportfished in DISTRICT</b> 1
<b>A3. License Type:</b> 0=None, 1=Annual, 3=Daily, record days	<b>A9. Gender:</b> 1=Male 2=Female
<b>A4. Daily License # Days</b>	<b>A10. A Phone #</b> 7=cell 16=No phone Foreign leave blank

X-EFFORT SHOULD NEVER BE CODED ON PC MODE INTERVIEWS.

<b>MM Anglers skipped</b> [ ]	<b>MM Anglers that started fishing</b> [ ]	<b>PR2 Boats</b> TR Launched [ ]	<b>D. Non-Fishing TR</b> [ ]
<b>CRFS 2007 ANGLER INTERVIEW FORM</b>			
1. Assignment No. <b>2 7 9</b>		2. * Sampler	
3. Month/Day <b>5 2 1</b>		3. * Angler in boat	
4. Interview # <b>6</b>		4. Dep. <b>ALL BOAT FOLLOWER</b>	
5. Time interview started (24 Hr:Min) <b>1 0 1 2</b>		5. Distance from any shore? <b>1</b> < 1 mi. <b>2</b> more than 1 mi.	
6. Site Name <b>5 3</b>		6. * PR Trailer 0=No 1=yes in Count Area? <b>0</b>	
7. Ony-Site Code <b>1 0 7</b>		6. * Charter Boat (group paid), 8=Private/ Rental boat	
8. Site Name <b>6</b>			
9. Mode: <b>1</b> 1=Per Deck, 2=Jetty/Breakwater, 3=Bridge/Causeway, 4=Other Structure, 5=Beach/Bank, 6=Party Boat (per head), 7=Charter Boat (group paid), 8=Private/Rental boat			
10. Status: <b>0</b> =Non-angler 1=Complete 2=Non-key net			
11. # of Initial Refusals <b>0</b> # Language Barriers <b>1</b> # of Key Refusals <b>1</b> < These must be in the mode of fishing above			
12. E1. Fishing Effort Area: Ocean (or open bay), River, Bay or harbor, S.F. Bay, Mexico			
13. E2. Gear 1=Hook & line 2=Dip net 3=Cast net 8=Spear 9=Hand			
14. E3. Wet Gear hours fishing in above mode? <b>1 2</b>			
15. E4. SHORE trip add'l hours. 0=Complete Trip must be 1/2 done. 50% of all interviews must be "Complete".			
16. L1. BOATS: Asked Fishing <b>0</b>			
17. L2. Lc (Depth) <b>1</b> L3. Format: <b>1</b> L4. Angle: <b>1</b> L5. Bottom (Depth) <b>1</b> L6. Depthfinder used? <b>0</b>			
18. THIS FORM SHOWS AN EXAMPLE OF GROUP CATCH ON "OTHER"			
19. ANGLER'S FORM (INTERVIEW #5). (Record < LEAVE F4 BLANK.			
20. L7. All catch from this location? 1=yes, 0=no, then 8=no catch			
21. L8. Location on back.			
22. *F1. PRIMARY AND SECONDARY TARGET SPECIES 0=Anything 1=Bottomfish 2=Sharks 3=Surface 4=12 F = same as First boat angler			
23. F2. Reported or unavailable catch (for this angler only)? <b>1</b> F3. Examined and available catch? If yes, code F4 >> <b>0 0 5</b> ON OTHER FORM *F4. # of contributors *F5. Interview ###			
24. A1. RESIDENCE? Country, State County: <b>Salinas</b> IF DK get City Name			
25. A2. Zip code: <b>9 3 9 5 0</b> A6-7. Days Saltwater Sportfished in DISTRICT <b>9 8</b>			
26. A3. License Type: 0=Non Annual, 3=Annual record only <b>9 8</b> A6... in last 12 Months? <b>1</b>			
27. A4. Daily License Days <b>1</b> A7... in last One Month? <b>9 8</b>			
28. IF ANGLER IS UNDER AGE 16, LEAVE A9 AND A10 (NAME AND PHONE) BLANK.			
29. THIS DOES NOT			

IF ANGLER DID NOT KNOW THEIR COUNTY OF RESIDENCE, TRY TO OBTAIN CITY, ZIP OR TELEPHONE NUMBER SO IT CAN BE LOOKED UP LATER.

## BOAT LEADER

PLEASE NOTE: ALTHOUGH MM MODE IS SHOWN AS BEING TARGETED ON THIS INTERVIEW, SOME SITES HAVE A TARGET OF PR2 ONLY. IN THOSE CASES, LEAVE ITEMS A AND B BLANK.

**WMP#** 01 **MM Anglers** skipped **04** **MM Anglers** that started fishing **00** **C. # PR2 Boats** TR Launched **01** **D. Non-Fishing** TR **00** **E. Missed TR**

**CRFS 2007 ANGLER INTERVIEW FORM**

**1. Assignment No.** 213 **2. Sampler**

**3. Month/Day** 824

**4. Interview #** 3

**5. Time interview started (24 Hr:Min)** 1427

**7. Cnty-Site Code** 41-102

**8. Site Name**  
First interview at site

**9. Mode:** 8  
1=Per/Dock, 2=Jetty/Breakwater, 3=Bridge/Causeway, 4=Other Structure, 5=Beach/Prk, 6=Party Boat (per head), 7=Charter Boat (group paid), 8=Private Rental boat

**10. Status:** 0=Non-angler 1=Complete 2=Non-key ret.

**# of Initial Refusals** 0 **# of Language Barriers** 0 **# of Key Refusals** 0 < These must be in the mode of fishing above

**E. Fishing Chart Area:** Ocean (or open bay), River, Bay or harbor. **SINCE MODE IS "8" ON THIS FORM, THIS REFUSAL MUST ALSO HAVE BEEN FROM A PR2 (MODE 8) BOAT.**

**E2. Gear** 30 **E3. Trawl** 0 **E4. Trawl Species** Chinook Salmon

**1. S A L C K** Chinook Salmon

**2. 0** None (Anything)

**\*F1. PRIMARY AND SECONDARY TARGET SPECIES** 0=Anything 1=Boltonfish 2=Sharks 3=Surfscot 4=Tuna F= same as First boat angler

**\*F2. Reported or unavailable catch (for this angler only)?** 1 **\*F3. Examined and available catch? If yes, code F4-5 >>** 2

**S O L** **A1. RESIDE** PLEASE WRITE ANY PHONE RELEATED COMMENTS HERE

**94591**

**A3. License Type:** 0=None, 1=Annual, 3=Daily, record days 5 **A6... in last 12 months?** 0 **A7.... in last 01 month?** 0

**A4. Daily License #** Days

**1. B1. Interview # of first boat angler.** (B2-B11 - First Boat Angler ONLY)

**2. B2. # Anglers in boat** 1 **B3. \*PR Trailer 0=no 1=yes in Count Area?** 0 **Kakayak** **B5. \*Dept.** Date

**900** **B4. Departure Time?** **B6. Distance from** 1 <=3 mi. Code if Island > IR7 <=3 mi. CA Island

**2 DEPTHS (NOT NECESSARILY MINIMUM AND MAXIMUM) CAN BE RECORDED (1 IN EACH BOX).**

**B9. CPV#**

**1. L1. BOATS: Asked Fishing Location?** (1=Yes, 0=No, 3=Same as First).

**414-51-61-71** **L2. Location(s)** **100** **L5. Bottom Depths (feet)** **150**

**5. L3. Format:** 1 **L6. Depthfinder used?**

**1=Degrees' minutes' + grid size**  
**2=State site code #** **8=DK** **9=RE**

**U4. Angler gave location using:** ☐ Chart ☐ GPS/Logan ☐ Site name

**Fishing Site Name** **Tomales Point**  
(Record code(s) at L2):

**1. L7. All catch from this location?** 1=yes, 0=no, then 8=no catch **fish from Location on boat.**

**A8. Name:** James Arabaugh  
Full name # >15

**1. A9. Gender:** 1=Male 2=Female

**7076912208** **A10. A Phone #** 7=cc age 16 8=no phone **E. leave a blank**

**Dating Memo when to call:**

**Call between 2am and 4am. Sleeps days.**

Call between 2am and 4am. Sleeps days

PR2

## BOAT FOLLOWER

00	A. MM Anglers skipped	01	B. MM Anglers that started fishing	02	C. # PR2 Boats TR Launched	00	D. Non-Fishing TR	01	E. Missed TR				
CRFS 2007 ANGLER INTERVIEW FORM													
1	1. Assignment No.	2	1 3	2	* Sampler								
8	2	4	3. Month/Day	ALL OF THESE CHANGES IN ACTIVITY MUST HAVE OCCURRED WITHIN 15 MINUTES PRIOR TO OR 15 MINUTES AFTER THE TIME OF THIS INTERVIEW IN ORDER FOR THEM TO BE LISTED ON THIS FORM.									
4	4. Interview #	ANY CHANGE OCCURRING OUTSIDE OF 15 MINUTES WOULD GO ON A "STATUS ZERO" FORM.											
1	4	3	0	5	Time interview started (24 Hr:Min)								
4	1	1	0	2	7. Only-Site Code								
8. Site Name First interview at site													
0	9. Mode:	1-Per/Dock, 2-Jetty/Breakwater, 3-Bridge/Causeway, 4-Other Structure, 5-Beach/Bank, 6-Party Boat (per head), 7-Charter Boat (group paid), 8-Private/Rental boat											
2	10. Status:	0-Non-angler 1-Complete 2-Non-key ref.											
0	# of Initial Refusals	0	# Language Barriers	1	# of Key Refusals	< These must be in the mode of fishing above							
0	E1. Fishing Effort Area:	Ocean (or open bay), River, Bay or harbor, S.F. Bay, Mexico											
1	E2. Gear	1-Hook & line 2-Dip net 3-Cast net 8-Spear 9-Hand											
3	0	E3. Wet Gear hours fishing in above mode?											
		E4. SHORE trip add'l hours.	0=Complete Trip must be 1/2 done. 50% of all interviews must be "complete".										
F	Same as first angler												
2	angler												
*F1. PRIMARY AND SECONDARY TARGET SPECIES 0=Anything 1=Bottomfish 2=Sharks 3=Surface 4=Tuna F = same as First boat angler													
0	F2. Reported or unavailable catch (for this angler only)?	1	F3. Examined and available catch? If yes, code F4-5 >>	ON THIS FORM									
S	O	L	A1. RESIDENCE? Country, State County: IF DK get City Name	A8. Name:	Full name if >15								
9	4	5	9	1	A2. Zip code? 9=Refused 8=DK (get city)	A6-7. Days Saltwater Sportfished in DISTRICT							
0	A3. License Type: 0=None, 1=Annual, 3=Daily, record days	5	A6... in last 12 Months?	7	0	7	6	9	1	2	2	0	8
	A4. Daily License # Days	9	9	A7... in last ONE Month?									

IF ANGLER REFUSES TO SAY HOW MANY DAYS THEY FISHED IN THE LAST MONTH, CODE AS 99 (NOT SIMPLY "9").

## STATUS ZERO FORM

00	A. MM Anglers skipped	00	B. MM Anglers that started fishing	05	C. # PR2 Boats TR Launched	3	D. Non-Fishing TR	01	E. Missed TR
CRFS 2007 ANGLER INTERVIEW FORM									
1	1. Assignment No.	2	1 3	2	* Sampler				
8	2	4	3. Month/Day	ON THIS STATUS ZERO FORM, AN ENTIRE BOAT WAS MISSED BECAUSE THE 3 ANGLERS ON-BOARD ALL REFUSED TO BE INTERVIEWED.					
5	4. Interview #								
1	5	0	5. Time interview started (24 Hr:Min)						
4	1	1	0	2	7. Only-Site Code				
8. Site Name First interview at site									
1	9. Mode:	1-Per/Dock, 2-Jetty/Breakwater, 3-Bridge/Causeway, 4-Other Structure, 5-Beach/Bank, 6-Party Boat (per head), 7-Charter Boat (group paid), 8-Private/Rental boat							
0	10. Status:	0-Non-angler 1-Complete 2-Non-key ref.							
3	# of Initial Refusals	0	# Language Barriers	0	# of Key Refusals	< These must be in the mode of fishing above			
	E1. Fishing Effort Area:	Ocean (or open bay), River, Bay or harbor, S.F. Bay, Mexico							
	E2. Gear	1-Hook & line 2-Dip net 3-Cast net 8-Spear 9-Hand							
	E3. Wet Gear hours fishing in above mode?								
	E4. SHORE trip add'l hours.	0=Complete Trip must be 1/2 done. 50% of all interviews must be "complete".							
1	L1. BOATS: Asked Fishing Location? (1=Yes, 0=NO, 3=Same as First).								
2	L2. Location(s)								
	L3. Format:	1-Degrees' minutes + grid size 2-State site code# 8=DK 9=RE 3-Degrees' mins secs 4-Decimal degrees 5=CDGF Block-Box <grid size> B, B-b, B-b-b, B-b-b-g							
	L4. Angler gave location using:	Chart GPS/Loran Site name							
	Fishing Site Name (Record code(s) at L2):								
	L7. All catch from this location? 1=yes, 0=no, then 8=no catch	fish from Location on back.							
*F1. PRIMARY AND SECONDARY TARGET SPECIES 0=Anything 1=Bottomfish 2=Sharks 3=Surface 4=Tuna F = same as First boat angler									
	F2. Reported or unavailable catch (for this angler only)?		F3. Examined and available catch? If yes, code F4-5 >>	ON THIS FORM					
	A1. RESIDENCE? Country, State County: IF DK get City Name	A8. Name:	Full name if >15						
	A2. Zip code? 8=Refused 8=DK (get city)	A6-7. Days Saltwater Sportfished in DISTRICT							
	A3. License Type: 0=None, 1=Annual, 3=Daily, record days	A6... in last 12 Months?							
	A4. Daily License # Days	A7... in last ONE Month?							

## SPECIAL FISHERY CODE

B SPECIAL FISHERY CODE									
A. MM Anglers skipped		B. MM Anglers that started fishing		C. # PR2 Boats TR Launched		D. * Non-Fishing TR		E. * Missed TR	
CRFS 2007 ANGLER INTERVIEW FORM									
1. Assignment No. 195 2. * Sample SPECIAL FISHERY CODE "B"									
3. Month/Day 428 ANY MM (MODE 1, 2, 3, 4) OR PR2 (MODE 8)									
4. Interview # 2 INTERVIEWS CONDUCTED DURING A BB (MODE 5) OR PC (MODES 6 AND 7) ASSIGNMENT ARE									
5. Time interview started (24 Hr:Min) 1047 AUTOMATICALLY BONUS (SPECIAL FISHERY CODE "B").									
6. Only-Site Code 73 - 307									
8. Site Name COMPLETE-TRIP MM INTERVIEWS CONDUCTED									
9. Mode: 1 9-Mode: 1-Per/Dock, 2-Jetty/Breakwater, 3-Bridge/Causeway, 4-Other Structure, 5-Beach/Blank, 6-Pier/Boat (per 7-Charter Boat (group paid), 8-Private/Rental boat									
10. Status: 2 10-Status: 0-Non-angler 1-Complete 2-Non-key ref.									
11. # of Initial Refusals 0 # of Language Barriers 1 # of Key Refusals 0									
12. E1. Fishing Effort Area: Ocean (or open bay), River, Bay or harbor, S.F. Bay, Mexico									
13. E2. Gear 1-Hook & line 2-Dip net 3-Cast net 8-Spear 9-Hand									
14. E3. Wet Gear hours fishing in above mode 17									
15. E4. SHORE trip add'l hours. 0-Complete									
16. B O N P A Pacific Bonito SPECIAL FISHERY CODE "C" (CREW MEMBER): IF A FISHING CREWMEMBER IS INTERVIEWED.									
17. 0 None (Anything) SPECIAL FISHERY CODE "T" (TOURNAMENT): AN INTERVIEW OF AN ANGLER PARTICIPATING IN A FISHING TOURNAMENT.									
18. S D G A1. RESIDENCE? Country, State County: 92054 A2. Zip code? 92054 A6-7. Days Sportfished in 1 A6... in 12 Months A7... in 12 Months A4. Daily License # Days 0									

## CREEL SURVEY RECORDS

## TYPE 2 &amp; 3

## TYPE 2 REPORTED OR UNAVAILABLE CATCH (ONLY FOR THE ANGLER ON THIS FORM)

Common Name	*Species	*No. of Fish	*Dispo.	Location
1 Blue Rockfish	RFB L U	025	1	1
2 Lingcod	L N G C D	015	1	2
3 Type 2 records listed in this section can ONLY be those fish				
4 caught by the angler who's name is on the front of the form.				
5 Grouping of type 2 records (unlike Type 3) is not allowed.				
6				

## TYPE 3 AVAILABLE EXAMINED CATCH

GROUP Catch	*Species	*No. of Fish	Fork Len. (mm)	Weight (kg)	D	L	Fish Sex
1 Surf Smelt	S M S U R	29	170	32	3		1
2 An example of pool weights. A sample of 10 fish are weighed together and then each of those fish is measured. The combined weight of those 10 fish (.32 kg in this case) is coded after the 1st measurement. The following 9 weight fields can be left blank.							
3 Note: Please write "pool weight" so that there is no question this is the weight of 10 fish and not 1.							
4							
5							
6							
7							
8							
9							
10							
11							

## TYPE 3 AVAILABLE EXAMINED CATCH

GROUP Catch	*Species	*No. of Fish	Fork Len. (mm)	Weight (kg)	D	L	Fish Sex
1 Kelp Greenling	G R N K P	004	0233	0017	3	F	1
2 An example of determining the sex of the							
3 fish.							
4 F = Female							
5 M = Male							

## TYPE 3 AVAILABLE EXAMINED CATCH

GROUP Catch	*Species	*No. of Fish	Fork Len. (mm)	Weight (kg)	D	L	Fish Sex
1 Kelp Greenling	G R N K P	004	0233	0017	3	F	1
2 If L7 (all fish caught at location							
3 coordinates?) is coded as 0 (no), this implies							
4 that not all of the fish were caught at the							
5 location. Those that "were" caught at the							
6 location get a check mark. This applies to							
7 both Type 3 "and" 2.							

## PR1 BOAT SURVEY PROCEDURES

This survey samples catch and effort by site-day at primary launch ramps (PR1). Primary launch ramps are those that land the majority of the species of concern in any particular month. The survey samples boats utilizing these launch ramps for effort and catch.



### Introduction

The PR1 survey estimates total effort and catch for each individual primary ramp and month. The data from this survey, the secondary roving survey (PR2) and the telephone survey of licensed anglers (ALD for night and private access fishing) is summed to make total private and rental boat (PR) effort and catch estimates for the CRFS program. See the CRFS program document for details on this and the other PR surveys.

### Effort Data

The primary goal is to estimate total effort for the day. This is done by counting trailers and returning boats. For each boat we must determine the primary activity. If the boat is fishing, we determine the target fish species and anglers per boat. The monthly random sample selects 20% or more of the days each month for each ramp. Effort is expanded to account for weekend (and holidays) and weekday days not sampled (the remaining 80%). The effort estimate is in boat (and angler) trips by target fishery group.

### Catch Data

The secondary goal is to estimate catch per boat. Catch per boat is determined by counting numbers of fish species landed and catch not landed (returns and other un-landed fish). Catch per boat is averaged for the ramp and month. Estimated total catch is the product of estimated effort and mean catch per boat.

### Location of Catch data

The third goal is to collect data on the location and depth of catch. These data are determined by showing the boat operators maps of the area and asking them to localize specific locations and depths of their fishing. The data is used to summarize the catch estimates in depth ranges and geographic areas. The data can also be viewed in a GIS for trends in catch. This information is required to manage the fisheries by depth and geographic area.

### Measurement Data

The fourth goal is to sample lengths of landed catch. Lengths will be used to calculate a predicted weight and to examine the size distribution of the

## PR1 Boat Survey Procedures

landings. Mean weight is used to estimate total catch in metric tons. Metric ton estimates are used to evaluate catch quotas and rebuilding status of distressed species.

### Sample Selection

Sampling of days is uniform across the month by week with random day selection within weeks. Weekends and holidays are sampled separately from weekdays at different sample rates. Sampling assignments are drawn one to two weeks before the first of the month.

### Scheduling of Days

The Supervisor will schedule the random selection of days for each month in advance. Rescheduling of sample days is strongly discouraged and may be done only with Supervisory consent. Sampling is spread out over the weeks in the month to insure that sampling assignments are temporally consistent and cover changing effort. Ramp sites are sampled on a number of days per month by kind of day. The two kinds of days are weekends-holidays and weekdays. Effort is expected to be different for these kinds of days and will be sampled separately. In general, the sampler should expect more sampling on weekends and holidays than on weekdays.



### Sampling the Boats

Primary sites will be sampled for effort and catch during daylight hours. The Sampler will arrive early enough to sample the first boat returning to the site and depart after the last boat returns, the sun sets, or the departure time your supervisor set for you is reached. Sampling of boats will be conducted at one site. While on a PR1 assignment samplers will not rove to alternate sites because of low effort. A trailer count will be conducted upon arrival. All boats returning to the site during sampling hours will be recorded. A second trailer count will be conducted upon departure. Occasionally, a PR1 site may have no effort, due to weather, construction, etc. The Sampler should stay on site for an hour to see if effort develops. A site-day with no effort is a valid complete assignment.

### Definition of PR1 Boat Types

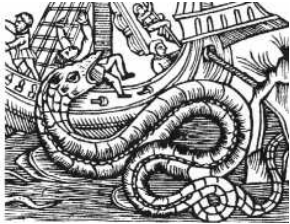
- *CRFS Boat* - A boat, either private or rented, upon which fin-fish fishing occurred or fin-fish were caught as by-catch of non-fin-fish fishing.
- *Non-Fishing (NF) Boat* - A private or rental boat upon which no fin-fish fishing occurred or no fin-fish were caught. This includes CPFV boats and dive boats with no spear fishing.

Q. What if I see a PC (party or charter) boat returning to the PR1 ramp?

A. Code the boat as an NFCOM (commercial) boat and sample the anglers opportunistically with the angler form. Follow the instructions in the Angler Form section.

### Sub-sampling Boats

Circumstances such as congested boat ramps, numerous refusals, etc. at some busy sites may prevent you from properly conducting a census of every boat. In these cases it is permissible to switch to a non-biased method of sampling every Nth boat. When selecting the Nth boat, you should consider the potential for biases in size of vessel, number of anglers per boat, size of boat (larger boats may go further offshore) and time of day to properly represent activity at the site for the day. You may return to sampling of all boats when effort drops off and you do not believe this will bias the sample. Record every missed boat.



### Effort Data Collection

The primary goal is to determine the activity, i.e. effort, of every boat returning to the site. A specific set of data must be collected for every boat that returns to the PR1 site. For every boat intercepted, record the time, number of anglers, and the primary target (species or activity). For non-fishing (NF) boats (recreational or commercial activity type), record the specific non fishing activity for the primary target. See the NF codes in the back of this manual.

Boats targeting shellfish (crabs, lobsters, etc) only, are NF unless they have a fin-fish as “by-catch” or also targeted fin-fish. By-catch means, for example, that they may have caught a “finned” fish in a crab pot or speared a fish while diving for lobster. NF boats, shellfish boats and dive boats that never targeted fin-fish or without fin-fish by-catch are not eligible CRFS boats.

### Missed Boats

If you miss a boat completely while sampling other boats it is a ‘missed boat’. Missed boats do not have a time, target or number of anglers recorded. Missed boats are tallied with the current boat the Sampler is interviewing at the time.

### Off-Site Missed Boats

During salmon season in Northern California, you may be asked to count sport fishing boats going past the launch ramp into a marina or harbor as “off-site missed boats”. Trailer counts may also be made off-site and coded on the ASF. Do not include boats returning to alternate sites as missed boats unless instructed to do so. Specifics are given for each port below.

Ramp Site	Missed Boats Monitored	Off-Site Trailer Count Site for Arrival and Departure
FTB Fort Bragg - Noyo	Dolphin Isle	South Harbor District LR
FLD Fields Landing	King Salmon	
PR1 Princeton	Princeton	
BER Berkeley	Berkeley	Emeryville LR

### PR1 Boat Survey Procedures

MOS Moss Landing Ramp	Woodward Launch Ramp	Woodward Launch Ramp
MOH Monterey Harbor Ramp	Monterey Marina	
BOD Bodega	Bodega	Doran LR
SCR Santa Cruz	Upper Harbor (-1 if return)	

### Off-Site Recording procedures

Off-Site arrival and departure counts at alternate trailer count sites are recorded on the PR1 Form in the upper right boxes on page 1. Boats observed going to the off-site are recorded in the right most missed boats column. The grand total of off-site missed boats is recorded on the Assignment Summary form.

### Specific Off-Site Count Instructions

**Fort Bragg:** A trailer count of the South Harbor District parking lot must be taken before and after sampling. Recreational fishing boats that pass the launch ramp on their way to Dolphin Isle are counted as missed boats.

**Fields Landing:** Recreational fishing boats that are seen going into the King Salmon marina should be counted as off-site missed boats.

**Princeton:** Recreational fishing boats that are seen going into the marina should be counted as off-site missed boats.

**Berkeley:** A trailer count should be made at the Emeryville launch ramp before and after sampling the Berkeley launch ramp. Recreational fishing boats that go by the boat ramp into the marina are counted as off-site missed boats.

**Bodega:** A trailer count is made at the Doran launch ramp before and after sampling the Bodega launch ramp. Recreational fishing boats that go by the launch ramp counted as off-site missed boats.

**Santa Cruz:** Recreational fishing boats are counted as off-site missed if they pass the launch ramp and head to the upper harbor. Boats interviewed at the launch ramp are asked if they went toward the upper harbor prior to landing. Boats answering yes are adjusted with a (-1) in the count.

**Moss Landing:** A trailer count is made at the Woodward Ramp before and after sampling. Recreational fishing boats that head towards Moss Landing Marina are counted as off-site missed boats.

### Catch Data Collection

All private boats that have completed a fishing trip should be sampled for catch. Catch includes landings and reports of discards or other catch that was not landed. The Sampler may have to interview all anglers on the boat to determine total catch since anglers may not be aware of each others returned catch or landings. This determination may need to be done before the driver leaves to get the trailer.

### Sub-sampling Catch

There may be times when the level of activity at a site is too high to sample the catch on every incoming boat. Under these conditions, the Sampler should conduct systematic sampling by sampling every Nth boat for effort and catch. It is permissible to have miss boats while sub-sampling boats with large catches.

Q. What if too many salmon boats are coming in for me to key out all rockfish species and also take heads, can I code all the rockfish to genus?  
A. No, you must use the boat sub-sampling procedure and miss a few boats.

## Measurement Data Collection

### Lengths

After determining the catch for the boat, the Sampler will measure as much of the catch as possible. It is important to the CRFS program to measure fish that are under management, especially the species of concern. A prioritized list of species to preferentially sample will be provided to you. Lengths are used to predict weights and to examine length classes.

### Sub-sampling Lengths

There may be times when the level of activity at a site is too high to sample the lengths of fish on every incoming boat or every fish on one boat. The Sampler should attempt a random or systematic sample of fish in this case. Do not measure only the larger or smaller fish in the catch. The lengths taken should allow an accurate calculation of the mean fish size. Lengths are used to calculate predicted weights.



### Weights

If there is time, the Sampler will also weigh as much of the catch as possible. Weigh unusual fish species and species of concern first. A prioritized list of species to preferentially sample will be provided to you. Weights can be calculated from the fish with just a length measurement. Weights are used to help with length to weight prediction, estimate mean weight and total metric tons.

### Sub-Sampling Weights

There may be times when the level of activity at a site is too high to sample the weights of measured fish on every boat. If there will be more fish lengths than weights to be taken, the Sampler should attempt a random or systematic sample of fish weights. Do not weigh only the larger, smaller or fatter fish in the catch.

## Location Data Collection

The Sampler will attempt to determine the location of catch or the boat's fishing effort if there is no catch. Maps are provided to assist the angler in determining the depth and location of catch. Locations may be for all of the catch or individual species. For trips with large areas of trolling for non-

## PR1 Boat Survey Procedures

bottomfish species, a general area will be used (such as the block). Catch area is used to manage fisheries by geographic boundaries.

### Sub-sampling Locations

There may be times when the level of activity at a site is too high to sample the locations of all catch on every boat. In these cases, the Sampler should attempt a random or systematic sample of more specific locations for bottom-fishing boats. This allows some boats to give a single more general location (block) to save time. Boats targeting surface fishes (tuna, salmon, etc.) may be coded with the general area (block) when time is short. The Sampler will not gather more specific locations of only the larger or smaller catch rates or unusual species when sub-sampling boat locations.

Q. What if a salmon boat comes in with a few canary rockfish, do I code the salmon effort or the bottomfish part of the trip when I'm in a hurry?  
A. No, you do not code the trip effort, you code the catch. It is more important to code the location for the rockfish catch. Code the salmon to the general block.

## Minimum CRFS Sample

A CRFS sample is defined as a boat which has been sampled for both effort and catch. Catch locations (by species) and length measurements are not required to code a CRFS sample. The following data elements are the minimum requirements for a useable CRFS interview:

- Number of anglers
- Number of days fished
- Target species and gear
- Catch numbers by species
- Location of catch (or effort if no catch)

At busy times, it may be necessary to conduct a "short" CRFS interview that omits the locations of each species and measurements, but still qualifies as a CRFS interview. At the most busy times of all, it may be necessary to code 'missed boats'. The coding form has been designed to allow this flexibility.

## THE PR1 FORM

The PR1 Form collects total boat effort for the day by counting trailers and returning boats. Each boat is screened as fishing or non-fishing. For fishing boats we determine target fish species and anglers per boat. In Northern California during salmon season, the form will also count all retained and release salmon and record salmon head tag numbers. For boats with catch, all of the fish will be counted by species. When time allows, catch locations will be recorded and fish will be measured or weighed.

### Introduction to the Boat Interview

The Sampler has some basic tasks while sampling boats which are generally done in this order:

1. Count boat trailers upon arrival
2. Monitor all boat return times (including boats missed)
3. Determine if the boat is fishing or not
4. Determine number of anglers and county of residence or one angler
5. Determine total days fished on trip
6. Determine the total licensed and unlicensed anglers on boat
7. Determine the target species and gear (or non-fishing activity)
8. Determine if any catch, discards or marine mammal losses
9. Count catch by species (especially salmon with fin-clips)
10. Determine the location and depth of the catch, or effort if no catch
11. Record length measurements and weights (if time) of the catch
12. Depending upon region: collect salmon and/or white sea bass heads
13. Count all boat trailers at departure

### Before you Sample

Check your equipment and forms before you head out to the site in the morning. Be aware of the weather forecast. In Northern California during salmon season, be sure you have the additional equipment and tags. In Southern California, make sure to have your metal detecting wand with you. Double check the date, site, port and assignment ID. Record site information, your name, and ID code on the first PR1 form and on the Assignment Summary Form (ASF). Arrive on site early enough to sample the first boat returning to the site.

### Arrival on Site

When you arrive at the ramp, count the number of trailers, then determine the resources you will need while sampling, such as numbers of forms and supplies. Record your arrival time on the ASF and the arrival trailer count in the arrival count box on the first PR1 Form.

## The PR1 Form

### Sampler Location

There are differences among PR1 sites. On-site positioning procedures for obtaining interviews with boats will vary slightly by site. For example, boats might be interviewed while they are waiting for a boat hoist, while they are cleaning their boat at the wash down station, at the dock, or at the ramp. The Sampler will have to use discretion in determining the best approach at a particular site. In general, the best spot to sample is where the boats are waiting for their turn to exit the ramp.



### Two Samplers on One Assignment

In some cases, your supervisor will schedule two samplers to work at a PR1 site due to the number of boats returning to the site or the length of the day. Samplers may work shifts that overlap. The Supervisor may assign the Samplers different duties: e.g., one sampling effort (watching all boat activity) and one sampling catch (sampling CRFS boat catch). A common sampling strategy is one Sampler will arrive first and work till the second Sampler arrives, generally just prior to peak activity. Both samplers then work the peak period together until activity drops off and the first Sampler departs. The second Sampler then works until all or nearly all of the activity is done for the day. Your Supervisor will advise you as to which methodology to use based on the situation.

### Avoiding Duplication and Sharing Counts

It is very important that samplers don't duplicate or omit any data while working together and when submitting the forms and summaries. Each Sampler edits and submits a separate set of forms. The assignment ID is the same for both samplers. This is done so merging of the forms and renumbering of boats is not necessary. The arrival count will be performed by the first arriving Sampler, while the departure count will be performed by the Sampler who leaves the site last. These two counts will be on different form sets and specific to the Sampler for the assignment. The data will be merged together in the database. Please code the forms properly and keep adequate notes on what was done.

### Separate Forms and Totals

The Sampler who leaves the site last will need to obtain the PR1 totals from the ASF of the first arriving Sampler (and any other samplers, if more than two). Only the last departing Sampler will use the effort report from the other Sampler(s) to estimate the total anglers and boats at the site on their Assignment Summary Form. The other samplers will code their estimated total anglers and boats as '9' = total not determined. However, each Sampler will have their own separate PR1 boat, angler, missed boats, (salmon data), etc. totals on their PR1 Forms and Assignment Summary Forms. These totals will be additive after data entry to compute accurate grand totals for the assignment with multiple samplers.

### Trailer Counts



Trailer counts are made when you arrive and when you leave. Counts of “trailers” include traditional boat trailers and sailboat trailers. Personal watercraft (PWC) trailers, car top boat carriers, kayak and canoe carriers are excluded.

#### Adjusting the Arrival and Departure Counts

Boats may be disassembled, put into pick-up beds, put on car top carriers, put on off-site trailers, or be a small craft like a canoe or kayak. These are boats which were not included in the initial or final trailer count. If a sampled boat should have been in the “trailer” count, but was not because of the above, you may add to the trailer count on the first page of the PR1 assignment. Final trailer counts are used to adjust effort estimates and initial counts are used to evaluate effort distribution by time of day.

#### Salmon Off-Site Counts

In Northern California, during salmon season, you may be asked to record trailer counts for an alternate site. This data is recorded on PR1 in the right-most Arrival and Departure boxes labeled “off-site.” These will be summed and transferred to your Assignment Summary as PR counts (number of boats and anglers) pressure for another site (see figure below).

Page 1 of 3

COUNTS: on-site off-site

SAMPLER		SAMP #	Arrival	1	3
Harold Smith		195	Depart	0	5

CATCH

Catch Species	obs land seal tak	UNAV alive dead	Fork len (mm)				tag #	MSD BOTS	MSD BOTS
			1	2	3	4			
SALCK	3	0	675	566	474			0	0
	0	0	12345						
RFBLU	5	0						0	1
	4	0							

Example of coding the salmon off-site count.

### Monitoring the Boats

When a boat arrives at the ramp, a new record is normally created with the time of arrival. During very busy times, a boat may arrive and will not get a record because the Sampler(s) are busy with other boats. This boat will be tallied on an existing record row as a missed boat in the missed boat column. A missed boat may be either a non-fishing boat (NF) or a fishing boat. The count of missed boats is used to estimate a number of additional fishing boats. It is expected that missed boats will have the same proportion

### The PR1 Form

of NF to fishing boats as the boats sampled. This is a potential for bias. For example, if all of your missed boats are fishing boats, but half the boats you actually sampled were NF boats, then the estimate of fishing boats you missed will be underestimated by 50% because you missed boats were not representative of the boats you sampled. Therefore, missed boats should be a systematic or representative selection of all boats, not just fishing boats or boats that look like a lot of work to sample.

It is very important that you keep missed boats to a minimum

### Determination of Boat Type

Each boat record must have a time and be coded into a category based on activity. Ask a passenger on the boat as to its activity for the day. There are, essentially, two types of boats in the PR1 survey: Fishing and Non-fishing, since any CPFV boats are counts as NF.

#### Non-Fishing (NF) Boat Types

For NF boats you will determine the general activity such as shellfishing, commercial activity, etc (see NF list at the end of the species codes in this manual). For shellfish trips using traps or pots there is a chance for fin-fish by-catch. This will make the boat an eligible CRFS boat. The primary target for these trips should be changed to UNIFH (unidentified fish) and the secondary target is coded to the NF activity, usually NFSHL. Recreational boats have a large and diverse set of NF codes. Commercial fishing boats regardless of activity (diving, shellfish, fishing, etc.), are coded as NFCOM.

Q. If a boat has not yet returned, but we know the activity of the boat is Non-fishing or fishing, can we account for that somehow?  
A. No. The Sampler should remain on site to sample the returning boats.

#### CPFV Boats

Commercial Passenger Fishing Vessels (CPFV) are coded as NFCOM (commercial boat) on the PR1 form. If you encounter a six-pack or smaller CPFV, the boat is NF in the PR1 survey since its effort is covered by the CPFV phone survey. Interview the anglers using the Angler Form and procedures. This opportunistic data is used for PC CPUE calculations.

#### CRFS Boat Types

A CRFS boat is a boat that fished (gear in the water) for fin-fish. Catch is not necessary. Also, boats that caught finfish while engaged in recreational shell-fishing are also eligible CRFS boats. For fishing boats you will collect the minimum data needed for a CRFS boat, otherwise it is coded as a missed boat. The minimum data are all effort data columns, including residence for one angler, all catch species and numbers of fish and at least one catch location (may be general for all catch). It is not necessary to have a secondary target species if the boat was only after one species or after UNIFH.

## Getting Anglers and Days Fished

Once you determine the boat is an eligible CRFS boat, determine the angler effort on the boat. Some of the passengers may not be anglers who put gear in the water. Determine the number of anglers who actually fished. Next you will determine the number who did not have a license. It is best to determine this indirectly by asking what type of fishing license the anglers used today. The number of unlicensed anglers is used to adjust effort from the licensed angler survey. The final item required to estimate effort on the boat is the number of days fished. Usually this will be one day; however, some boats, especially in Southern California, may have taken multi-day trips.

One of the anglers will need to provide a residence county or state. This is the permanent residence of the angler, not temporary lodging. If the angler is from out of state or from a foreign country, the codes are found in the 'Geographic Codes' section of this manual. The residence is used primarily to make traditional MRFSS estimates from the survey of coastal US households. The angler asked should be a systematic representative sample, not biased by boat ownership, fishing skill, age, gender, etc.



### Determination of Catch

The sampler will determine if any fish were caught by the boat. Each CRFS boat will be a complete census for fin-fish catch. Catch includes landed catch **AND** fish purposely released (shakers), thrown back dead, given away, taken by marine mammals, used for bait, filleted or eaten. Anglers may report that they have no fish on the boat. However, a boat may still have a record of catch if they had caught and released a fish or lost a fish to a marine mammal.

### Examining Catch

The Sampler will examine all landed fish for each CRFS boat to determine the species and numbers of fish. Salmon catch has an additional special set of procedures. These procedures are discussed in the next section. If the boat refuses to have the landed catch examined, all catch are coded as unavailable catch, and the methods are discussed below.

### Salmon Tagging

Each CRFS boat with salmon will have all salmon examined for a clipped adipose fin (mark). Tag, measure the fish and remove the head from all marked salmon. A tag will be 'issued' to all marked salmon, even if the head is not recovered. A tag for a non-recovered head will be coded with 'NRS'. Heads removed from marked fish are wired with a pre-numbered tag to be retained in a freezer for periodic pickup by the OSP project. Heads are thawed and a coded wire is extracted which identifies the particular stock of fish. Keep heads chilled to prevent spoiling. See the catch sampling section of this document for complete details.

## The PR1 Form

### Unavailable Catch and Marine Mammal Losses

Each CRFS boat will be polled for any fish not available for examination. These are usually fish that have been thrown back, given away, used for bait, filleted or eaten. Unavailable fish are reported by the group of anglers on the boat. Fish that are landed but are refused to be shown to a sampler are also included as unavailable. These fish are counted separately from fish which the sampler personally examines and counts. Fish landed, reported as dead or lost to seals, and portions of the released alive catch are used to estimate total harvest.

The anglers are asked to separately report any unavailable fish released alive. Released alive includes fish landed or purposely shaken off the lines which are returned to the water in "swimming" condition. The samplers and anglers are not to judge the likelihood of survival of a swimming fish. The survival of fish returned alive is determined by application of mortality rates as determined by scientific studies of hooking mortality. Capture mortality rates may be applied only to the released alive catch. Fish that 'got away' are not considered purposely released and are not included as released alive. It is important to the CRFS program to differentiate between reported and observed fish counts. Estimates of total harvest are summarized separately for the Sampler examined and angler reported catches



Each CRFS boat will also be polled for any fish that were known to have been taken by any pinniped (seals, sea lions or other marine mammal). Anglers must be certain and have seen the marine mammal take the fish from the line. The sampler should enquire further those anglers who say 'I think' or 'maybe' a fish was lost to a pinniped. Samplers should not include fish that naturally escaped or was naturally caught and eaten by a pinniped.

### Catch Location

All CRFS boats are sampled for the fishing location and depth. For boats with catch, a fishing location will be recorded. Location and depth range may be recorded for all catch together or by species when determined and time allows. For boats with no catch, location and depth range for the majority of fishing effort is recorded. The majority of effort is defined as where most of their time was spent with gear in the water. Depth is used to put the catch estimates into depth zones and compare with locations. It is also used to help estimate mortality rates for some groundfish.

Q. If they don't have any catch, can I just leave the catch location blank?  
A. No, you must code a location, in this case to the majority area fished.

### Measuring Catch

For each CRFS boat with catch, the sampler should sample the catch for lengths and weights. The first priority is to measure priority species and, in

Northern California, marked salmon lengths. A secondary priority is to weigh important species. Given time, all fish may be measured and weighed. The fish may be sexed using external characteristics. Please see the Catch Sampling section for complete details and a list of priority species. Lengths are used to predict weights and to examine length classes and stocks. Weights are used to calculate more precise metric ton estimates and are used with the length to estimate fish condition.

### Boat Interview Priorities

Samplers should be aware that some of the data is required while sub-sampled data may be high priority or low priority.

#### Required Counts

Count boat trailers upon arrival  
Count all boat trailers at departure  
Count all boats missed

#### Required Boat Records

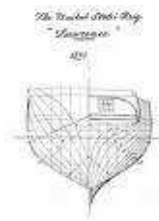
Monitor all intercepted boat return times  
Determine if the boat is fishing on not  
Determine the target species and gear (or non-fishing activity)

#### Required CRFS Data

Determine if any catch, discards or marine mammal losses  
Determine the location and depth of catch (or effort if no catch)  
Count catch by species  
Examine salmon for adipose fin-clips  
Determine the discard catch and marine mammal losses

#### Sub-sampled CRFS Data (Priority Order)

1. Record length measurements of priority species
2. Record lengths of other species
3. Record weights of priority species
4. Determine the location and depth of each species
5. Record weights of other species



### PR1 Form Layout

To speed the process of sampling at busy launch ramps the PR1 Form has a reduced number of items to code and limited questions for the angler. Boat data are recorded in rows with items for each boat in columns. Each boat row has two sub-rows to record two observations for each item in some columns. Boat data may span multiple rows and sub-rows as needed to code additional species, fish counts,

catch locations and fish measurements. Fish records for a boat may also be continued on the next page. The back of the same sheet may be the next page.

### The PR1 Form

The form is subdivided into four sections; the header row (sample day), individual boat data (effort), individual fish data (catch) and sub-total/totals (effort summary). New forms may be double sided to save paper.

#### Header Row Items

The header row records data for the sample day. The header includes the assignment number, date, site information, Sampler name and ID, and trailer counts. All of these items are required.

2006 PR1 FORM - CALIFORNIA RECREATIONAL FISHERY SURVEY (CRFS) 9/14/2006 Page \_\_\_\_\_ of \_\_\_\_\_

If you miss a boat, tally as missed boats with your current sampled boat. If refused also put number with 'R' in the margin.

ASSN ID	DATE	CNTY	SITE	OSP	SAMPLER	SAMP #	Start	Stop

#### Individual Boat Items

Individual boat data include CRFS sample number, time, anglers, unlicensed anglers, county of residence, target species and gear. Any missed boats are tallied on the same row as boat effort items.

EFFORT						MSD	MSD
crfs #	BOAT TIME 2400	ANGS	Res. County	TARGET	GER	BOTS	BOTS
		Fished w/o-lic	Days F	First Second	First Sec		
					mex		
					salm		

#### Individual Fish Data

Individual fish data recorded include the location\*, depth, species\*, number landed\*, number released\*, number of fish released dead\*, number lost to seals, lengths, weights and head tag numbers. The items with '\*' are required for a complete CRFS sample.

CATCH									
CATCH LOC Block-box Lat / Lon	BOTM Depth (ft)	Catch Species	obs	UNAV	Fork len (mm)				
			land	alive	Wgt (decimal kg) or head (tag #)				
			seal tak	dead	1	2	3	4	5

#### Total Items

At the bottom of each page, count the number of CRFS samples, sampled boats, i.e. all boats with effort (having an interview time). Also count anglers

and missed boats. The summary of effort from each page is used to quickly record and sum the samples for all pages in an assignment and further sum effort by region before all the data are key entered.

			Page Total		
CRFS	BOATS	ANGS		MSD	OFF
				BOTS	SITE

### Salmon trip data

These are recorded at the bottom of each sheet to facilitate timely OSP data summaries. These totals are summed for each assignment and then summed by OSP to make in-season estimates of effort and salmon catch used to manage salmon quotas.

SALMON TRIP DATA								
	SALM BOATS	SALM ANGS	KING KEPT	COHO KEPT	KING RELS	COHO RELS	TAG COUNT	SEAL TAKE

### PR1 Form Questionnaire

You will be provided with a laminated copy of the PR1 questionnaire. The question wording has been structured to capture the required information for this survey in an efficient and thorough manner.

You will be screening, introducing the survey and providing the Privacy Act in the same was as with the Angler Form as described in that Chapter. After screening for fishing and non-fishing boats you will introduce the survey to boats you will sample for catch by saying; **Hello, my name is and I represent (PSMFC / CCDFG). We are interviewing marine recreational anglers for a study sponsored by the National Marine Fisheries Service.**

You will state the Privacy Act saying; **This study is being conducted in accordance with the Privacy Act of 1974. You are not required to answer any question that you consider to be an invasion of your privacy.**

It is important that you use the wording of questions as stated in the questionnaire as documented here since slight changes in wording can result in different responses and potential biases.

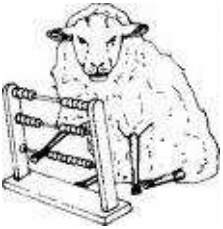
### PR1 Form Item by Item Instructions

FIELD NAME	INSTRUCTIONS	CODES AND FORMATS
<b>HEADER</b>		
Page Numbers	Enter, in sequence, the page number of the form and the total number of pages with	1 of 6

### The PR1 Form


FIELD NAME	INSTRUCTIONS	CODES AND FORMATS
	boats. This is to put the data in order for entry and insure that all the sheets for a day are accounted for.	
Q. What if the last boat starts on page 6 but some of the catch is on page 7? A. The code the last two pages as 6a and 6b. Q. What if page 3 of a 6 page assignment has nothing but catch for a boat on page 2 of the forms? A. Then code page 3 as page 2b and page 2 as 2a, there are only 5 logical pages.		
ASSN ID	Enter the six digit assignment ID number on all pages.	011023 = January South Coast sample 023 Assignments ID in the format MMDDNN where MM is the month ranging from 01-12, D is the geographic district from 1 to 6 and NNN is the sequence number from 001 to 999.
Date	Enter the year, month, and day of the interview on all pages.	YYYYMMDD 20040103 = January 3, 2004
Cnty	The numeric county code.	1 = Alameda to 111=Ventura
Site	The numeric site code matching the county. Site codes are provided in your site list with your monthly assignments.	59-104 = Sunset Aquatic Park
OSP	Enter the Ocean Salmon Project port code, if applicable.	FTB = Fort Bragg MOH= Monterey Harbor
Sampler	Enter your numeric Sampler ID in the ( ) and full name on all pages.	(444) Onko Renchus
Arrival Count	Enter the total number of boat trailers on and surrounding the site upon your arrival on the first page only. The start count helps you anticipate how many boats will be coming in.	Example: 45
Q. Do I copy the arrival and departure counts on the Assignment Summary Form? A. No. The counts go on the first PR1 form. However, the arrival and departure times go on the Assignment Summary Form. Q. Do I adjust the arrival trailer count for PR1 boats that did not have trailers in the area around the site? A. Yes. You may also adjust the end count if you notice that trailers are being parked in places you will not be able to count at departure. Also, exclude trailers that appear to be stored or inactive.		
Departure Count	Enter the total number	Example:

CRFS Sampler Manual

FIELD NAME	INSTRUCTIONS	CODES AND FORMATS
	of boat trailers on site upon your departure on the first page only. <b>IMPORTANT:</b> The departure count is used to calculate the effort estimate.	10
<p>Q. Do I worry about the trailer count area since we don't ask this for PR1 boats?</p> <p>A. No, your count area has no boundary and should include all reasonable places where boats using this site might park.</p>		
Off-Site Counts	In Northern California during salmon season you may be asked to record trailer counts at alternate sites. Counts of "trailers" are for traditional boat trailers only. Sailboat trailers, car top boat carriers and personal watercraft (PWC) trailers are excluded.	10 
EFFORT COLUMNS		
<b>Did anyone on the boat do any sport fishing?</b> If the boat is going back out for more fishing skip till next return.		
*CRFS #	Enter the sample number, in sequence, of all eligible recreational fin-fishing boats sampled. Do not apply a CRFS number to nonfishing or missed boats. Kayaks and PWCs count as boats. Refused fishing boats count as missed boats and do not get CRFS #.	NNN<K> 1,2,3... blank = Non-fishing (no sport fin-fish) Suffix K = CRFS boat is a kayak fishing boat (to flag CPUE data) "21K" = 21 <sup>st</sup> boat is a kayak
<p>Q. What is the minimal info for a CRFS boat vs. a missed boat?</p> <p>A. All of the items listed under the Effort set of columns, except RESIDENCE COUNTY as well as the numbers and species of fish. This may be done by shouting at a boat, but all of the catch, if any, would be unavailable, if not examined by the Sampler.</p> <p>Q. Can a shellfish dive boat be a CRFS boat?</p> <p>A. Yes, any recreational boat with fin-fish catch can be converted to CRFS. Code the primary target as a fin-fish, such as UNIFH, then code the secondary target as a recreational non-fishing boat, such as NFSHL.</p>		
*TIME	Enter the time in military format when you sampled the boat. All boats, except missed boats, get a unique interview time. Time is used to evaluate sample distribution in the day.	2400 format 2:50pm = 1450 6am = 0600


The PR1 Form

FIELD NAME	INSTRUCTIONS	CODES AND FORMATS
<p>Q. What is the info needed for an NF boat?</p> <p>A. Just the time and NF code. Also, the count of missed boats, if any.</p> <p>Q. How do I count a boat that is launching?</p> <p>A. Launching boats are ignored in the PR1 survey.</p>		
<b>How many of you had gear in the water?</b>		
*ANGS fished	Enter the total number of anglers on the boat regardless of license status (licensed anglers + unlicensed anglers). Code zero for NF boats. Angler counts are used to estimate mean catch per angler and total angler effort.	0= NF boat 2 = anglers who fished Refused: code as a missed boat with an "R" outside of the missed boat box <input type="checkbox"/>
<b>What type of license does each of you have?</b>		
*ANGS No-lic	Enter the number of 'anglers' without a current license. The Sampler will determine the number of anglers fished who did not possess a current California sport fishing license. Anglers under the age of 16 may have a license even though it is not required. The number of unlicensed anglers is used to compare angler estimates from this survey with the angler estimates from the ALD survey.	0=All anglers have a license Refused: code as a missed boat.
<b>What is your county of residence?</b>		
Res. County	Select a random angler on the boat and request the permanent residence county. Do not always ask the boat operator. Enter the 3 letter alpha code for the California county, the postal code of another state or three letter F code of a foreign country. The county is used to evaluate economic models and compare effort estimates with the MRFSS.	<p>ORA = Orange county AZ = Arizona CA = CA county unknown FIE=Ireland 999=refused</p> <p>If California: 3 letter alpha county code CA county unknown: code CA Out of state: 2 letter state postal code Out of country: 3 letter country code</p>

FIELD NAME	INSTRUCTIONS	CODES AND FORMATS
<b>What time did you leave the ramp?</b>		
*Days F	Enter the total number of days the boat fished on this trip. This is recorded as the number of "daylight fishing" days for the boat. Some boats launched from ramps will have the capability to fish multiple days. Boats returning from a night fishing trip with zero hours of daylight fishing get a zero for "days fished". For example, fishing the evening of one day and the morning of the next day (both with fishing during daylight hours) counts as two days of fishing. Number of days fished is used to adjust the effort estimate upward for multiple day trips. Night fishing is estimated in the ALD survey.	1 = fished one day 0 = fished at night only Refused = code as missed boat  >1 = multi day trip: total number of days when gear was in the water.  
Q. What if the boat fished at night? A. Enter zero for trips that only fished between sunset and sunrise.		
*TARGET (Activity)	Each boat not missed will be screened to determine primary activity. 1) <u>Fishing</u> boats must be sport, have targeted (or incidentally caught) fin-fish with gear in the water. 2) <u>Non fishing</u> boats are coded with NF followed by a brief description of the boats activity in the TARGET field.	NF: sailing NF: sport crabbing NF: fishing, seas too rough NF: commercial anglers NF: lunch cruse NF: sport lobster NF: divers, no spears For NF, leave CRFS #, GEAR, CATCH and AREA sections blank. Do record "0" for ANGTS  Refused: This is a missed boat, terminate interview Not fishing: NF code
Q. What if the boat went out to fish but never put gear in the water? A. Code the trip as NFREF (no-fishing recreational fishing trip) Q. What if they were NF and refused to say what they were doing? A. Code them as NFUNI (non-fishing unidentified)		
<b>What were you primarily after? (NF doing)?</b>		
*Primary TARGET	Fishing: Enter the	SPBAR = barred surfperch

FIELD NAME	INSTRUCTIONS	CODES AND FORMATS
	primary fish species or taxon targeted by the boat in the 5 letter alpha code. Targets may be determined by asking the angler(s); "what was the number one and number two fish were you fishing for". Record the species codes from the species code list. Anglers who don't have specific targets will be recorded as "UNIFH".	HALCA = CA halibut  NF[XXX] Type of Non-Fishing boat.
Q. What if I cannot determine the target of a fishing boat due to refusal and is unable to determine the target by seeing fish or fishery specific gear? A. The boat is counted as missed because this is a key question.		
<b>What were you secondarily after?</b>		
Secondary TARGET	Fishing: Enter a second fish species or taxon targeted by the boat. If there was no secondary target leave the box blank. The secondary target is left blank for boats with only one target.	BOTOM = bottom fishing <Blank> = no other target
Q. If there is no secondary target, do I enter UNIFH? A. No, don't enter anything, leave it blank.		
<b>Did you try to catch salmon today?</b>		
√ Sal	Check box if boat at anytime during fishing trip tried for salmon. If salmon was caught as by-catch (by accident), leave box blank.	Never tried for salmon or refused then it is left blank
<b>Did you fish in Mexico?</b>		
*√ Mex	Check box if the majority of the boat fishing time was in Mexican waters.	Majority of time in US waters left blank.  <b>YES: Was most of your fishing time in Mexico?</b> YES: X box NO: box blank (mostly fished in US waters)  NO: box blank Refused: This is a missed boat, terminate interview
Q. If most of the catch came from Mexico do I mark this box? A. Not if most of the fishing time was in US waters.		
<b>What gear did you use for &lt;primary target&gt;?</b>		
*Primary Gear	Enter single letter code	H = hook and line,


FIELD NAME	INSTRUCTIONS	CODES AND FORMATS
	for the primary fishing gear used by the boat for the primary target. The gear is used to classify trips into categories and for estimating hooking mortality. Gear is left blank for 'NF' trips or blank secondary targets. There are three special gears for salmon fishing	T= Troll P=Pot S = spear. (includes any diving gear like 'hand') <blank>=NF trip or refused  SALMON ONLY GEARS M=mooching (drifting near the bottom) and B=both mooching and trolling.
<p>Q. What do I code for catching shellfish by hand and they caught a fin-fish?</p> <p>A. If they are diving for shellfish, then the target is UNIFH and the gear is S (spear=dive) even if they are catching shellfish by hand. If lobster is the first target and there is finfish by-catch, then lobster should be changed to the second target and the first target should be entered as UNIFH (unidentified fish), since no fin-fish was targeted. Lobster divers get gear S=spear.</p> <p>Q. What about commercial shellfish anglers?</p> <p>A. Commercial lobster catching should be NFCOM, not NFSHL</p>		
<b>What gear did you use for &lt;secondary target&gt;?</b>		
Secondary Gear	Enter single letter code for the secondary type of fishing gear used by the boat for the secondary target.	H = hook and line, T= Troll P=Pot S = spear. (includes any diving gear like 'hand') <blank>=NF trip or refused  SALMON ONLY GEARS M=mooching (drifting near the bottom) and B=both mooching and trolling.
<p>Q. Should a gear be recorded for each species?</p> <p>A. No, the gear is only for each target species in the effort columns.</p> <p>Q. How do I code the gear for shellfish anglers using a bait bag?</p> <p>A. Anglers will use 'P' to catch most shellfish. Sometimes crabs can be caught using an 'H' (line with bait bag). Divers will use 'S' to catch shellfish (even though they probably grab them by hand). No-one ever catches shellfish using a 'T' or 'M' gear because of the current.</p> <p>Q. Can I code two gears for one target species?</p> <p>A. Yes, but only if there is one target species. If there are two target species only record the primary gear of each.</p>		
MISSED BOATS	Enter the number of boat(s) that <u>you did not sample</u> while you were sampling another boat. Missed boats are those whose effort and target are not known or refused. Indicate refusals by writing and R next to the number,	1 (missed boat) No not leave blank, no missed boats = 0 1R = one refusal


FIELD NAME	INSTRUCTIONS	CODES AND FORMATS
	for example, 2R in the margin to indicate that 2 of the missed boats were actually refusals.	
<p>Q. What if a boat is uncooperative, but appears to be a non-fishing boat?</p> <p>A. Code it as a missed boat with an 'R' suffix.</p>		
<b>CATCH COLUMNS</b>		
<b>Where did the boat catch most of the fish?</b>		
Catch Loc (Block# Lat/Lon)	If the boat has catch, enter the primary location where the majority of the fish were caught. If no catch, code the primary location of the boat effort. Refer to codes and formats for permitted methods of coding location. Blank location rows for species are assigned the catch location from the row above. <u>The only non-numeric character allowed is a dash.</u> CCDFG block and box numbers or lat/long coordinates with a grid size may be used. If catch by location of each species is unknown, record one location for all of the catch. For trips with large areas of trolling for non-bottomfish species, record a general area with either the block number or the coordinate minutes and grid size. The locations are used to put the catch estimates into distance from shore categories and for GIS mapping. The priority rank of the location is for 1) landed fish, 2) reported fish, or 3)	<p><b>NO CATCH: Where did the boat spend most of its time fishing today?</b></p> <p>Block-Box (both rows with dashes): 212-01 (block &amp; one box) 235-12-14-15 (block &amp; up to 3 boxes or two three digit boxes for inland marine waters bbb-bbb) 252 (block only)</p> <p>Lat/Lon: Latitude in upper box No decimal degrees or decimal minutes allowed. 1) Degrees, minutes and grid (DDMM / DDDMM-GG) 2) Degrees, minutes &amp; seconds (DDMMSS / DDDMMSS) Where D=degrees, M=minutes, S=seconds, G= area in minutes</p> <p>Codes for no location coded: DK = Angler does not know RE= Angler refused DA= Sampler did not ask TB= Sampler too busy</p> <p>NOTE: If the location is above a freshwater cutoff, the boat is not eligible and should be coded = NFREF.</p> <p>NOTE: Please ask the <u>bottom depth</u> for all</p>

CRFS Sampler Manual

FIELD NAME	INSTRUCTIONS	CODES AND FORMATS
	majority of fishing time. If the anglers report locations by species and time allows, record the location for each species.	species, even if the catch location is not determined.
Q. What if I don't have a map of where they fished? A. Write a description of the location so it can be found later on a map. Q. If more than one species are from one of the locations how do I code that? A. Coordinates are automatically copied down for any species after the one with coordinates so arranging the species by location reduces duplication.		
<b>What was the bottom depth at that location?</b>		
Bottom Depth (ft)	Enter the bottom depth in feet for the for the catch location. A single mean depth or depth range may be entered. If the location is unknown, the depth should be recorded by species when possible. This is not a mid-water depth of capture.	100 (feet) or <u>100 = min</u> 120 = max  Don't know: blank Refused: blank
Q. If I get the depth can I leave location blank? A. No, you must record a minimum of one location for all the catch. Q. What if there is one depth for salmon and another for rockfish? A. Record separate locations and depths by salmon and rockfish. It is more important to get accurate depth for rockfish because depth affects mortality rate.		
<b>Did the boat catch any fish today?</b>		
*Catch Species	Enter the alpha code for each species or taxon of all fish examined or reported by the boat. Additional rows are used for boats with multiple species catch. CRFS samples without any catch should have ZEROS written in each of the catch boxes. If catch data are not determined the boat shall be coded as missed. Put a line through the record and put a missed boat on the next line.	No catch: then record "NO CACTH" and enter zeros for numbers of fish  Refused: This is a missed boat, terminate interview  SPBAR = barred surfperch HALCA = CA halibut
Q. What if the species does not have a 5-letter code? A. Use the three digit numeric code the fish species, see full species list		
<b>May I see the catch?</b>		
*Observed landing	Enter the number of fish examined for this boat. Sampler will	Yes: Sampler will identify and count all fish. No: Enter zero (code as

The PR1 Form

FIELD NAME	INSTRUCTIONS	CODES AND FORMATS
	identify and count each species retained by the boat. May include fillets with identifiable skin. Bags of unidentifiable fillets, fish not seen, or fish not counted by the Sampler do not get recorded here.	UNAVAILABLE) Unidentified Fillets: Enter zero (code as UNAVAILABLE)  1 (fish observed landed) 0=no identifiable catch
Q. What if the boat has no catch? A. Write 'NO CATCH' in catch species and enter zeros for ALL numbers of fish. Q. What if I make a row for a species and later find more after already adding rows for new species? A. Add to the number of fish in the original row for this species (showing the added fish i.e. +2) draw an arrow from a new row up to the original row if taking more measurements.		
<b>Did you see any seals or sea lions take your fish?</b>		
Seal Take	Enter the number of fish <u>reported</u> taken by seals or sea lions from the boat. ·The angler must have seen the pinniped take the fish  ·Enter 0 if 0 fish taken.	Yes: record species and number of fish No: enter zero Refused: blank Don't know: blank  1 (fish reported lost to marine mammals)
Q. How do I code fish thrown back dead or alive which are eaten by a sea lion? A. If eaten after being thrown back; code them as unavailable alive or dead. Only code seal take for fish taken prior to landing on the boat.		
<b>Did the boat catch any other fish?</b>		
*UNAV Alive	Enter the total number of fish <u>reported</u> as released alive by the angler(s) on this boat. Fish must have been landed or have been purposely released, i.e. 'salmon shakers'. Exclude fish that 'got away'.	Yes: record species and number of fish ALIVE or DEAD, asking; <b>What fish were released alive?</b> No: enter zero Refused or don't know: This is a missed boat, terminate interview
<b>What fish were killed?</b>		
*UNAV Dead 	Fish unavailable to be sampled Enter the total number of fish by species/taxa <u>reported</u> as released dead or any unidentifiable fillets by the angler(s) on this boat. Exclude seal take. It is important to the CRFS program to separate fish reported	1 (dead fish reported or not identified, fillets)  ·Includes fish used for bait, thrown away, given away and unidentifiable fillets (note if fillets).  No: enter zero Refused or don't know: This is a missed boat, terminate interview

FIELD NAME	INSTRUCTIONS	CODES AND FORMATS
	alive or dead. Probe the anglers for discarded catch that might not be remembered, such as bait species and undesirable species, i.e., anchovies, mackerels, etc.	
NOTE: Above * items are key for a CRFS boat.		
CATCH DATA		
Fork len (mm) & Fish Sex 	Enter, in the top row, the fork length in mm of each measured fish. Lengths never go in the bottom row. Add an 'M' or 'F' after the length for sexed fish. If there are more than 5 fish measurements of any species, additional rows may be used to record lengths. Be careful when skipping down rows so that the next boat will have a new row. <b>When using another row for lengths do not duplicate the catch numbers of fish.</b> There is no limit to the number of fish per species that may be measured.	321 (fork length in mm)  Record the sex of fish with external characteristics: <nnnn>F (female fish) <nnnn>M (male fish) <nnnn>T (transitional sheephead)  F = female fish 401F = 410mm female fish
Q. What if I measure more than 5 fish for one species in a boat? A. You may use more boat rows directly below and continuous with the species to record more lengths or weights, but do not repeat the numbers of fish in the extra rows or record lengths in the weight sub-row		
Weight	Enter, below the matching length, the weight in kg of the fish with a decimal point. Do not weigh headed and/or gutted fish. However, bled fish may be weighed If there are more than 5 fish measured of any species, use additional rows to record lengths and weights.	0.21 (weight in kilograms) 11.0 (leading and trailing zeros not necessary)
Head tag	Enter, only for salmon, the head tag number below the length. Do	Example: 12345  Example 23456NRS (non-

FIELD NAME	INSTRUCTIONS	CODES AND FORMATS
	not weigh this fish For heads not recovered or lost, record the Head Tag # and code NRS (Non Recoverable Specimen). The head tag number is recorded below the length in the same column. Head tag numbers are 5 digits, i.e. "12345".	recoverable head) - If the head is not retained for some reason, add NRS (non-recovered specimen) as a suffix to the tag number, as in "12345NRS".
Q. Is a boat that refuses to cooperate missed? A. Yes, refused boats are included in the missed boat count; you may indicate the number of missed boats that refused in the margin.		
FOOTER		
CRFS Page Total	This is the count of all CRFS boats on the page. Page totals are never blank.	3 (CRFS boats on page)
BOATS Page Total	This is count of all boats on the page. This should be the number of records with time recorded.	4 (BOATS sampled on page)
ANGS Page Total	This is the SUM of the ANGS fished for the page.	12 (ANGS on sampled boats on page)
MISSED Page Total	This is the SUM of the MISSED BOATS for the page.	2 (MISSED BOATS on page)
Q. Do I record missed boats on the Assignment Summary Form under status? A. No, missed boats for the day are in the ASF footer at 'PR1 TOTALS'		
SALMON TRIP DATA		
SALMON BOATS Page Total	Enter the number of boats on the page that has the salmon checkbox marked with an X	0=No salmon data #=Number of salmon boats <blank>=N/A
SALMON ANGLERS Page Total	Enter the SUM of the ANGLERS	#=Number <blank>=No salmon data, N/A
KINGS KEPT Page Total	Enter the SUM of the OBSERVEDSALCK LANDED on the page. Include 'unavailable dead' kings here.	#=Number <blank>=No salmon data, N/A
COHOS KEPT Page Total	Enter the SUM of the OBSERVED SALCO LANDED on the page	#=Number <blank>=No salmon data, N/A
KINGS RELEASED Page Total	Enter the SUM of the UNAVAILABLESALCK ALIVE +DEAD on the page	#=Number <blank>=No salmon data, N/A

FIELD NAME	INSTRUCTIONS	CODES AND FORMATS
COHOS RELEASED Page Total	Enter the SUM of the UNAVAILABLE SALCO ALIVE +DEAD on the page	#=Number <blank>=No salmon data, N/A

### PR1 Form Coding Tips

If a CRFS boat sample is continued onto another form write "CONT" (continued) in the bottom margin of the starting page and left margin of the next form next to the CRFS number. The CRFS number should only appear once. Do not repeat any data on the second form to avoid double counting boats or catch. Draw a line to separate boats.

CRFS #	BOAT TIME	ANGS Fished w/o-lic	Res. County
23	1245	3	ALA
CONT			

Example of continuing a boat onto the next page (back of form or next sheet).

### Specific Editing Checks

- Locations and depths are for the *catch* (not the gear or target).
- All salmon tag numbers go in the weight box.
- NF boats do not get a CRFS number.
- Code only one depth per "catch depth" box.
- Number of anglers *without* a license is always less than the number of anglers.
- If there was any salmon effort then the Salmon box gets X'ed
- If the fishing effort is in Mexico, then the Mexico box get's X'ed
- Start and stop counts should be provided on page 1 only
- Missed boats are only coded on the first row of a boat (NF or CRFS boat)
- If only one depth for a species, put it in the upper (first) depth box.
- All CRFS boats must have a location.

### Example Forms

PR1

2007 PR1 FORM - CALIFORNIA RECREATIONAL FISHERY SURVEY (CRFS)

If you miss a boat, tally as missed boats with your current sampled boat. If released also put number with 'R' in the margin.

Page 1 of 1

COORDINATES AND DEPTHS: THESE COORDINATES AND DEPTHS APPLY ONLY TO CAUGHT FISH (NOT THE TARGET SPECIES)

CRFS BOAT: 84097, DATE: 20070804, SITE: 415, CNTY: 1, FRT: 1, OSP: 1, SAMP: Laverne Jones, SAMP #: 295, SALMON TAG NUMBER GOES: 25, IN WEIGHT FIELD, IF PROVIDED, THEN NO WEIGHT CAN BE RECORDED FOR THAT FISH.

EXAMPLE OF CORRECT CODING FOR BLOCK WITH 4 BOXES (YOU WOULD USE BOTH ROWS)

IF NF BOAT, CODE ONLY TIME, NF-CODE AND '0' FOR "ANGLERS" TO REDUCE VISUAL CLUTTER. LEAVE CRFS BOX BLANK (SLASHES AND DASHES CAN BE MISTAKEN FOR NUMBERS).

START AND STOP COUNTS SHOULD BE RECORDED ON THE FIRST PAGE ONLY. LEAVE ALL OTHER PAGES BLANK.

## Page 2 of 3

~~COUNTS~~  
on-site off-site

ASSN ID	DATE	ONLY	SITE	OSP	SAMPLER	SWAMP #	Start	Stop
91054	20070915	73	435		Harold Smith	143		

CRFS BOATS	ANGS	Page Total	SALMON				TRIP DATA				SALMON TAGS	X-rays	tagline	
			Salm	mx	Salm	mx	Salm	mx	Salm	mx				
1245	0		NFO TH											
1250	0		NFREF											
1251	0		NFCRU											

CRFS BOATS	ANGS	Page Total	SALMON				TRIP DATA				SALMON TAGS	X-rays	tagline	
			Salm	mx	Salm	mx	Salm	mx	Salm	mx				
1245	0		NFO TH											
1250	0		NFREF											
1251	0		NFCRU											

CRFS BOATS	ANGS	Page Total	SALMON				TRIP DATA				SALMON TAGS	X-rays	tagline	
			Salm	mx	Salm	mx	Salm	mx	Salm	mx				
1245	0		NFO TH											
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CRFS BOATS	ANGS	Page Total	SALMON				TRIP DATA				SALMON TAGS	X-rays	tagline	
			Salm	mx	Salm	mx	Salm	mx	Salm	mx				
1245	0		NFO TH											
1250	0		NFREF											
1251	0		NFCRU											

CRFS BOATS	ANGS	Page Total	SALMON				TRIP DATA				SALMON TAGS	X-rays	tagline	
			Salm	mx	Salm	mx	Salm	mx	Salm	mx				
1245	0		NFO TH											
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CRFS BOATS	ANGS	Page Total	SALMON				TRIP DATA				SALMON TAGS	X-rays	tagline	
			Salm	mx	Salm	mx	Salm	mx	Salm	mx				
1245	0		NFO TH											
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CRFS BOATS	ANGS	Page Total	SALMON				TRIP DATA				SALMON TAGS	X-rays	tagline	
			Salm	mx	Salm	mx	Salm	mx	Salm	mx				
1245	0		NFO TH											
1250	0		NFREF											
1251	0		NFCRU											

CRFS BOATS	ANGS	Page Total	SALMON				TRIP DATA				SALMON TAGS	X-rays	tagline	
			Salm	mx	Salm	mx	Salm	mx	Salm	mx				
1245	0		NFO TH											
1250	0		NFREF											
1251	0		NFCRU											

CRFS BOATS	ANGS	Page Total	SALMON				TRIP DATA				SALMON TAGS	X-rays	tagline
			Salm	mx	Salm	mx							

## CPFV SURVEY PROCEDURES

The primary goal for PC sampling is to sample CPUE. CPUE is determined by counting numbers of fish species observed (landings) and asking about catch not observed (releases and other un-landed fish) for each angler. Other data relevant to the angler effort and catch, such as location, depth, trip type and fish measurements will be recorded on the standard Angler Form. Catch estimates will be calculated for all PC sites in the District for each month. Estimated mean catch per angler will be calculated and multiplied by total effort from the PC phone survey to estimate total catch.

A secondary goal for PC catch sampling (on-board) is to collect discard fish lengths. Fish that will be returned to the water or unwanted fish that will be retained by the boat crew are measured. Discard data is important for the calculation of the weight of catch thrown back alive and dead.



### PC Definitions

Party and charter boats who take passengers to fish in saltwater must be permitted by the state as a CPFV and be Coast Guard inspected.

- **Party boat** A boat on which fishing space and privilege are provided for a fee. The vessel is operated by a licensed skipper (guide) and crew. In some parts of the country party boats are also called headboats or Commercial Passenger Fishing Vessels (CPFV's). Groups may arrange to pay as a group but additional anglers or other groups are able to pay to board for the trip.
- **Charter boat** A passenger vessel which will allow itself to be "hired" by a group of anglers for exclusive use. The purpose of chartering a vessel is to gain privacy, increased deck space and/or control in the operation of the vessel's fishing activity and fishing locations. Party boats operate under charter for a specified price, time, etc. Charters are usually closed parties, as opposed to the open status of all-day and half-day party boats. The terms "charter boat" and "party boat" can be used interchangeably in different parts of the Pacific coast.
- **Six-pack** – Small party or chartered boat that only carries six paying passengers. Due to limited passenger capacity, these trips will frequently need to be sampled dockside. Some six-pack vessels launch from public launch ramps, and may be encountered during PR mode assignments.

## CPFV Survey Procedures

### When to Ride or Sample Dockside

Ride the boat on all bottom fishing trips, especially rockfish and lingcod. If the boat changes species after leaving the dock, continue sampling the entire trip. Long range trips, such as for albacore north of Point Conception, you will need to interview the anglers when they return due overtime issues. A fleet of six-pacs at a landing may be interviewed dockside, unless only one is going out, then sample on-board. Your Supervisor may assign the type of boat trip to sample, such as ½ day, ¾ day, twilight, or overnight. Your supervisor may also assign the target species, such as bottomfish, lingcod, salmon, or bass. Long range boats arrive at odd hours so you will need to check with the landing for the boats arrival time to sample dockside. Vessel intercepts to sample dockside or on-board may occur very early in the morning or late at night.

### Dockside Sampling

When sampling a CPFV dockside, this is, when not boarding and sampling during the trip observe the following procedures:

1. Sample catch with the Angler Form
2. Catch and interview anglers with no catch if they leave first. The catch rate could be biased if only successful anglers are interviewed.
3. For PR1 assignments, list the CPFV as a NFCOM boat on the PR1 form and conduct interviews with the Angler Form.
4. Record the fishing location on the first angler's form, code the rest as 3 = 'same as first'. Be sure to get the general location.
5. Record the boat name and permit # of the vessel on the first angler's form.
6. Write '(dockside)' on the first angler's form next to the boat name.
7. Write a comment on the ASF listing any dockside sampled PC boats.
8. Fish thrown away in the trash by anglers go on the angler form as type 3 records, if observed by the sampler.
9. Record the lengths of any remaining 'boat fish' on the discard form.
10. Crews are eligible if they have retained their own catch, code as Special Fishery "C"
11. Record the trip on the "vessel check" form with the check time recorded as just before the return time
12. If the boat is unlisted or on the 'bad' list, get the boat name, permit number (if present), a vessel contact name (landing office, captain or owner) and telephone number for the phone survey.

13. You may code the reported boat target species to all the anglers.
14. Do not measure 'trophy fish' landed whole when the angler had all the small fish of the same species filleted. Doing so can bias the average size of the landed catch. Code the trophy fish as type 3 omitting the length. Code the fillets separately as type 2 with the number reported by the angler unless they can be identified and counted.

### Angler Form Special Coding

In order to learn more about the PC boats we do see, the CRFS has two questions on the angler form. These items are for the first PC angler interviewed per boat. Since the name of the boat is not necessarily unique we are collecting a vessel permit (DFG) number as well. These help determine if a boat you sampled is included in the PCPS.

									First PC Boat Angler	PC Boat
									B1. Boat Number 8=NA (Skip)	
B3. PC Boat Name:										

*First angler PC boat identification*

### Coding Party Boat or Charter Boat

CRFS Samplers will verify the correct mode (6 or 7) on the angler form with regard to party or charter boats.

* <input type="checkbox"/>	9. Mode:	1=Pier/Dock, 2=Jetty/Breakwater, 3=Bridge/Causeway,
		4=Other Structure, 5=Beach/Bank, 6=Party Boat (per head), 7=Charter Boat (group paid), 8=Private/Rental boat

*Each angler gets matching PC mode as '6' or '7'.*

### Introduction to On-Board Sampling



#### Conduct of this Study

This on-board data collection program has been conducted since 1999. It is similar in some ways to previous studies carried out by CDFG's Central California Marine Sport Fish

Project in Monterey (Reilly, P. N. et. al. Onboard Sampling of the Rockfish and Lingcod Commercial Passenger Fishing Vessel Industry in Northern and Central California [vars. eds. 1987-1995]). These on-board studies go a step beyond traditional access point surveys that interview anglers at the conclusion of fishing.

### CPFV Survey Procedures

Since most CPFV's fillet catch at sea, samplers must ride the party or charter boats in order to collect important data on retained catch. Since we may ride the party boats, there is an opportunity to collect detailed information about all locations fished. The data collected is a substitute for the location of majority of harvest collected on the angler interview.

Since most party and charter boats maintain an array of electronics on-board, we have the ability to collect information such as bottom depth, exact geographic coordinates and surface temperature with the captain's permission. We may also carry onboard our own GPS receiver (with the captain's permission). We also will be able to collect species composition, measure discards and observe pinniped interactions for each fishing location.

### Additional Data Collected On-board

- Location, surface temperature, duration, and depth for each fishing spot
- Species kept and released for 'observed' anglers at each spot
- Pinniped interactions for 'observed' anglers at each fishing spot
- Measurement of returned fish by fishing spot (discarded fish form)

### Unbiased Angler Sampling

Many potential biases are avoided by going with the angler while some new potential biases are created. Problems with bad reporting and recall of data by the anglers are avoided but the behavior of the anglers and crew may be altered by the presence of the Sampler. For example, the Sampler may be perceived as an enforcement officer when dressed in a uniform. One study has shown that the returned catch rate of rockfish can decrease for observed trips. Due to these potential biases, the Sampler should avoid actions that alter fishing behavior at sea.

Some difficulties arise in the usage of questionnaires, coding forms and sampling procedures as the number of anglers on the boat increases beyond a reasonable number which can be observed. Therefore sampling of a subset of anglers on large vessels is systematic for each fishing location.

Sampling a subset of anglers on the boat at random becomes harder with an increase in the number of anglers and their mobility on the fishing platform. With current traditional bottom fishing trips on boats with up to about 20-30 anglers, the anglers do not move about the platform much. In surface fisheries, such as tuna trips and on large boats with many more anglers, the mobility of individual anglers increases greatly. If an inexperienced Sampler decides to save effort by sampling a subset of immobile anglers in one area of the boat, for example, the results would be statistically unsound due to improper sample selection. Contact your Supervisor if there is any question or concerns about how to sample or observe fewer than the total number of anglers on the boat.

## On-Board Observer Legal Rights

Under California law, you have the legal right to observe on board CPFV fishing trips. However, you must seek cooperation with the vessel and landing operators. Your goal as an observer is to have a cooperative relationship, avoiding adversity and defusing any hostility. Uncooperative relationships with landings and operators can lead to altered fishing behavior and biased sample data. You are there to observe normal fishing, not to enforce rules or alter angler behavior.



### Title 14 Excerpts

#### COMMERCIAL PASSENGER FISHING VESSEL LICENSES

§105.5. Cooperation with State and Federal Fishery Observers. (a) Owners or operators of commercial fishing vessels permitted under regulations of the Commission, and commercial passenger fishing vessels licensed pursuant to Fish and Game Code Section 7920, will, as a

condition of permit or license issuance, cooperate with Department or Federal fishery observers, or observers collecting data for the Department, when asked to carry and accommodate an observer on fishing trips at no charge to the sponsoring agency.

(b) If observer coverage of a trip is denied by the owner or operator of a vessel, the Department may require an explanation in writing from the owner or operator. This explanation shall be received by the Department within 15 days of written request by the Department for an explanation.

(c) The Department may request revocation of fishing permits or licenses to the Commission for denials that it deems to be uncooperative in nature, after first allowing the owner or operator to meet with the Manager of Marine Region, or his representative, to provide an explanation for the denial.

(d) The Department or Federal agency requesting cooperation under subsection (a) shall not require the vessel operator or owner to provide an observer with meals or a subsistence allowance on observed fishing trips, but shall accommodate the observer with regard to reasonable eating and working conditions and access to pertinent fishing information and fishery data while aboard the vessel.

(e) Failure to provide reasonable eating and working conditions or access to pertinent fishing information or fishery data to observers, or actions taken by a vessel owner or operator against an observer that is prohibited pursuant to subsection (f), on observed fishing trips may lead to revocation of the vessel's fishing permits or licenses issued under regulations of the Commission following the procedure outlined in subsections (b) and (c) above.

(f) To ensure that observer objectives may be reasonably and safely achieved, consistent with federal groundfish observer

## CPFV Survey Procedures

rules, it is unlawful for any person to do any of the following:

- (1) forcibly assault, resist, oppose, impede, intimidate, sexually harass, bribe, or interfere with an observer,
- (2) interfere with or bias the sampling procedure employed by an observer, including physical, mechanical, or other sorting or discarding of any catch before sampling,
- (3) tamper with, destroy or discard an observer's collected samples, equipment, or personal gear, without the express consent of the observer,
- (4) prohibit or bar by command, impediment, threat, coercion, or refusal of reasonable assistance, an observer collecting samples, making observations, or otherwise performing the observers duties,
- (5) harass an observer by conduct that has sexual connotations, has the purpose or effect of interfering with the observer's work performance, or otherwise creates an intimidating, hostile or offensive environment,
- (6) require, pressure, coerce, or threaten an observer to perform duties normally performed by crew members



### On-board Fishing Locations

Each "stop" the boat makes where the anglers are allowed to drop their lines into the water is a separate fishing location.

When the boat is not anchored and the anglers drop their lines, the location is termed a "drift" if the engine(s) (running or not) are not engaged into gear to provide power. As the boat drifts along anglers continue to fish the "drift" and cover an area over the bottom dependent on currents and wind. Once the anglers are told by the captain or crew to pull up their lines the "drift" ends when all anglers have their gear out of the water.

Sometimes the boat will reposition or "station" over a productive fishing location. In this case, the anglers may or may not pull up their gear and the boat may be under power (gears engaged) in order to maintain or slowly move into a favorable location. In these cases, only one location need be applied to the fishing, even if the anglers needed to pull in their lines temporarily while the boat moved (usually relatively slowly) back into position. Often this "re-location" event is announced to the passengers in advance.

Since a fishing location may be a drift or troll with starting and ending points, two locations need to be recorded, one for when the anglers put their "lines down" and a second for when they pull their "lines up". Each starting and ending location will have a set of geographic coordinates and a time (in 24-hour format) in order to map the extent of travel over the bottom and calculate direction and average speed. If the drift was only a very short distance and time (less than 3 minutes or 300 feet) then the ending location geographic coordinates need not be recorded. However, the ending time should always be recorded so that catch per unit of effort can be calculated.

Often the captain will be “prospecting” for fish when he asks the anglers to drop their lines into the water because there is some evidence of fish on the electronics. This may result in very short unproductive stops. Record these locations since all fishing time will be used in the calculation of catch per unit of effort. There is biological interest in locations where fish are unavailable or not catchable.

### On-Board Catch by Location

For each fishing location the Sampler will keep a count of species caught, kept or returned. The count need not be a count of all angler catches since it is often difficult to be everywhere on the boat at once. The Sampler should keep an accurate count of the number of fish caught, for a number of anglers being ‘observed’ for catch kept or returned at a location.

When the catch rates are very high, the Sampler may find it necessary to monitor fewer anglers for the catch count. It is acceptable to monitor different numbers of anglers at each location; however the preference is to monitor the same number of anglers throughout the trip (generally 10 anglers). When observing fewer than the total anglers on the boat, the Sampler should vary the group of anglers by position on the boat and by composition of individual anglers. This is required so that the sample you take is random with respect to the position on the boat (stern vs. bow) and the skill of the anglers. This is especially important on trips utilizing live bait where the live bait is also chummed in the stern of the boat. High catch rate anglers tend to congregate near the bait box. Avoid continuous sampling of the stern area by sampling in proportion the ‘numbers of anglers’ not the amount of catch.



### On-board Pinniped Observations

For each fishing location, the Sampler will be checking for angler interactions with seals or sea lions. The Sampler will observe the presence of seals or sea lions. If one is present the sampler will keep a count of lost bait, sportfish and gear for the observed

anglers at that location, and record when the boat leaves the location due to the presence of the seal or sea lion.

### Introduction

The Pinniped Interaction study began in 1999 and is used to gather information about the interactions of seals and sea lions with recreational fisheries. The National Marine Fisheries Service and others use this data to assess the ecological impact of pinniped involvement with fisheries in California. Populations of California sea lions and harbor seals are increasing in excess of 5% annually, and interactions with fisheries and endangered anadromous fish stocks are increasing.

Information gathered may help guide mitigation of the interactions between marine mammals and fisheries or fishery resources. Methods of mitigating

the interaction of pinnipeds and fishery operations are still evolving, and the relation of predation by pinnipeds on returning adult salmonids which are listed or proposed for listing remains unclear. The larger role of pinniped predation on fish stocks requires investigating to clarify the functional role of marine mammals in our ecosystem.



### Legal Pinniped Deterrence Defined

(a) Definitions. For the purposes of this paragraph, “catch” means an aquatic species that is attached, hooked, ensnared, netted or otherwise under the control of the owner or operator of that fishing gear.

(b) Deterrence measure authorization. (1) Except as provided in paragraph (d) of this section, measures consistent with the general guidelines in paragraph (c) of this section may be taken:

(i) By the owner of fishing gear or catch, either commercial or recreational, or an employee or agent of such owner to deter a marine mammal (other than species listed as endangered or threatened under the Endangered Species Act) from damaging gear or catch so long as such measures do not result in the death or serious injury of a marine mammal.

(ii) By the owner of other private property, or an agent, bailee, or employee of such owner, to deter a marine mammal (other than species listed as endangered or threatened under the Endangered Species Act) from damaging private property so long as such measures do not result in the death or serious injury of a marine mammal.

(iii) By any person to deter a marine mammal from endangering personal safety so long as such measures do not result in the death or serious injury of a marine mammal. Furthermore, it shall not be a violation of the Act to take a marine mammal, even lethally, if such taking is imminently necessary in self-defense or to save the life of a person in immediate danger, provided such taking is reported to the Assistant Administrator within 48 hours.

(2) Federal, state or local government officials and employees may, consistent with Sec. 216.22 of this chapter, deter a marine mammal from damaging public or private property.

(c) Guidelines for safe deterrence. The following measures are acceptable for the deterrence of marine mammals.

(1) Passive deterrence measures that preclude a marine mammal from accessing or interacting with persons, property, or fishing gear or catch may be used in the immediate vicinity of those persons, property, or fishing gear or catch that is to be protected. Nets, fences, or other types of physical barriers may be used provided the potential for marine mammals to become entangled is not increased.

(2) Active deterrence measures (including both ``preventive'' and ``reactive'' deterrence measures) that dissuade a marine mammal from interacting with persons, property, fishing gear or catch or that cause a marine mammal to cease its interaction with persons, property, or fishing gear or catch should not:

- (i) Separate a female and its offspring;
- (ii) Break the skin of an animal;
- (iii) Be directed at the head or eyes of an animal; or

(iv) Be used on pinnipeds hauled out on unimproved private property. Active deterrence measures that may be used include, but are not limited to, mechanical or electrical noisemakers, water sprayed from a hose, blunt objects to prod animals, large shielding objects (wood, metal or fabric) to herd animals, and hazing actions by boat operators.

(d) Prohibited deterrence measures. The following forms of deterrence are prohibited from use for the deterrence of marine mammals:

(1) Use of any firearm, or other device used to propel an object resulting in, or possible to result in, injury including, without limitation, crossbows, [[Page 22348]] spearguns, bangsticks, archery gear, harpoons, javelins, and spears;

(2) Use of any explosive device for use on cetaceans (dolphins and whales), and any device of explosive power greater than that of a seal bomb (USDOT Explosive Pest Control Device 1.4E NA-0412, formerly Class C) for use on pinnipeds (seals and sea lions);

(3) Translocation of any marine mammal;

(4) Use of any tainted bait, poison, or any other object or substance intended for consumption by a marine mammal.

(e) Acceptable measures for deterrence of ESA-listed species



#### *Marine Mammal Protection Act of 1972*

The MMPA established a moratorium, with certain exceptions, on the "taking" of marine mammals in U.S. waters and by U.S. citizens on the high seas, and on the importing of marine mammals and marine mammal products into the United States. It also charged NMFS with providing guidelines for deterring marine mammals.

The term "take" is statutorily defined to mean "to harass, hunt, capture, or kill, or attempt to harass, hunt, capture or kill any marine mammal." Under the 1994 amendments, the Congress statutorily defined and divided the term "harassment" to mean any act of pursuit, torment, or annoyance which -- 1. (Level A Harassment) has the potential to injure a marine mammal or

marine mammal stock in the wild; or 2. (Level B Harassment) has the potential to disturb a marine mammal or marine mammal stock in the wild by causing disruption or behavioral patterns, including, but not limited to, migration, breathing, nursing, breeding, feeding, or sheltering.

New section 101(a)(4) of the MMPA authorizes the intentional interaction of private citizens with marine mammals. Recreational fishers may now deter marine mammals from damaging fishing gear or catch; property owners or their agents may now deter marine mammals from damaging their property; and the general public may now deter marine mammals from endangering personal safety, provided such deterrence does not cause a marine mammal's death or serious injury. The proposed guidelines and prohibited measures set forth activities that are not likely to cause a marine mammal death or serious injury and specifically prohibit activities determined, using the best scientific information available, to have a significant adverse effect on marine mammals. Actions by the public to deter non-ESA listed marine mammals consistent with such guidelines would not be a violation of the MMPA. This proposed rule has not been finalized as of 12/8/98.

#### *NMFS Guidelines for Intentional Interaction (Marine Mammal Deterrence)*

You should be familiar with these guidelines in order to inform your Supervisor of any illegal or unusual actions taken by anglers.

#### *Approved Deterrence Measures*

[Federal Register: May 5, 1995 (Volume 60, Number 87, 22345)]

THE FOLLOWING ACTIONS MAY BE TAKEN BY RECREATIONAL ANGLERS TO DETER MARINE MAMMALS FROM DAMAGING GEAR OR CATCH SO LONG AS THE MEASURES DO NOT RESULT IN THE DEATH OR SERIOUS INJURY OF A MARINE MAMMAL:

##### **1. PASSIVE DETERENCE MEASURES**

These may be used to preclude a marine mammal from accessing or interacting with persons, property, or fishing gear or catch. These may include nets, fences, or other types of physical barriers that do not provide the potential for marine mammals to become entangled.

##### **2. ACTIVE DETERENCE MEASURES**

These may include both preventive and reactive deterrence measures that dissuade or cause a mammal to cease its interacting with persons, property, fishing gear or catch. These deterrence measures may include (but are not limited to):

1. mechanical or electrical noisemakers
2. Explosive devices may be used on seals and sea lions if they have an explosive power equal to or less than that of a Seal Bomb [USDOT Explosive Pest Control Device 1.4E NA-0412, formerly Class C]
3. water sprayed from a hose

4. blunt objects to prod animals
5. large shielding objects (wood, metal or fabric) to herd animals
6. hazing actions by boat operators (patrolling a net or an area in a small boat and deterring marine mammals with boat noise or by blocking their approach at the surface).

3. PROHIBITED DETERRENCE MEASURES:

The following forms of deterrence are prohibited from use:

1. Use of any firearm or other device used to propel an object resulting in, or possible to result in injury including, without limitation crossbows, spearguns, bangsticks, archery gear, harpoons, javelins, and spears
2. Use of any explosive device on dolphins or whales, and any explosive device on seals and sea lions with a power greater than that of a Seal Bomb [USDOT Explosive Pest Control Device 1.4E NA-0412, formerly class C]

More information: [http://swr.nmfs.noaa.gov/deter/Dets\\_Fisher.htm](http://swr.nmfs.noaa.gov/deter/Dets_Fisher.htm)



### On-Board the Boat Trip

The on-board observer has different procedures to follow before, during and after PC fishing. These procedures are designed to optimize your time and reduce potential bias. Samplers will use available time to collect data from anglers in advance, since that is difficult once the fishing gets hot.

### Arrival at a PC Site

Check to see if small craft or gale warnings are posted before going to the site, you may have to check if the trip may be cancelled. Show up 1/2 hour to 15 min. before the boat is scheduled to leave, boats almost never leave early. Sometimes party boats are full and you will be denied boarding, try another boat. If the landing says that the boat is "chartered", ask if you can get permission from the charter trip leader to ride the chartered trip. Be sure and gets the captain's permission to board the boat and never board the boat without his permission. Good rapport with the captain will often result in increasing the cooperation of the party boat patrons.

Sometimes the boat will cancel in the morning if not enough passengers show up. First try another boat at that location, and then try another location. If you can't get on any boat, don't wait for the boats to come in to sample dockside, reschedule the assignment. See extensive PC assignment scheduling section of this manual.

The operator must allow you free boarding privileges, if not, inform your Supervisor immediately and attempt to board another boat. Since you are an unpaid passenger and most boats have a legal capacity you may be unable to board at the time of the trip if the boat is full of paying

passengers. It may not be legal for them to take another passenger due to Coast Guard regulations.

You are not required to purchase a California fishing license to conduct sampling on the boat. However, if the vessel will be fishing in Mexican waters, Mexican law requires that you purchase a Mexican fishing permit.

### On the Way Out

Once the boat gets underway, the captain will give a speech about the lifejackets, etc. Start counterclockwise and do all the interview questions except the interview time and catch. It is better to ask the questions going out as the anglers are in a good mood as opposed to asking on the way back when they are sick and tired. Make a note of the angler's appearance, such as blue jacket, 49'er hat, etc.

Boats that assign numbers to anglers and keep their fish in numbered gunny sacks provide an ideal way to sample because the catch and angler are tied together by this number, and you can keep track of their catch. In these instances, the basic questions can be filled out on the ride out, and catch examined as it occurs, or as the bags are piled up for delivery, filleting, etc. Remember to watch for thrown back and discarded fish during fishing periods.

Under optimum circumstances all anglers on the boat will be interviewed. However, some form of sub-sampling may be necessary if the boat holds a large number of anglers, there is a large number of fish or if the time required for travel back to the dock is minimal.



### During Fishing

You will be monitoring each start and stop fishing location, time, and depth using the On-Board CPFV Sampling Form. You will also be monitoring a sub-set of the anglers (observed anglers) for kept and released numbers of fish by species for each fishing location. Keep an eye out for pinnipeds. If any are present, you will also be counting marine mammal interactions for your observed anglers. You will also be taking measurements of returned fish on the Discarded Fish Form when time allows. Details of this procedure and items to collect are in the detail section for those forms below.

Be sure and keep the Angler Forms organized and connected to the right angler. You may interview deck hands, but the form must be coded as special fishery 'C' (crew). The fish that the crew catches and gives to paying anglers belong on the receiving angler's form as type 3 records (as if the angler caught the fish). It can be too difficult to track fish that are distributed among anglers by the crew, so always follow this procedure.

If you see anglers doing illegal activities, do nothing. Let the captain and the crew police the boat if they choose to. Your job is to sample, not to police

illegal activity. Do not alter angler fishing behavior in any way. Do not act as a deck hand by helping passengers land fish or provide advice to increase the catch rate. Our workmen's compensation insurance does not cover you if you are injured while doing any deckhand duties. Stay out of the way as much as possible. Use your spare time to key out any unusual fish. Don't make comments about other party boats and the success at catching fish: keep a low profile.



### On the Way Back

Try to judge when the anglers will stop fishing and ask the filleter which bags he will do first. Filleter's may have preferential treatment of some anglers or bags. Count and measure fish in that bag matching with that angler's form.

While the filleter is cutting, count and measure the next bag. Attempt to keep ahead of the filleter, and do not interfere with the filleting process. You may have to skip the measurements for some fish. For safety reasons, stand clear of the filleter and fillet knives.

The interview time should now be recorded. Ask each interviewed angler about any type 2 fish. You may have to remind anglers about fish you saw thrown back. If an angler is obviously ill, do not press hard for a complete interview. Do not attempt to record catch given-away to another angler, as these are now in another angler's bag (and that angler may not even know it). We don't want to double count the catch.

Some anglers may become disgruntled when they discover that they had for example, 1 hour of actual fishing time on a 5 hour boat trip. To avoid complications between the customer and crew, it's best to determine fishing time by asking each angler to estimate the percentage of total fishing time they fished. Apply this percentage to the total fishing time recorded on the onboard location form.

Remember, we are allowed to ride these boats by permission and having the cooperation of the crews and landings is important. Don't do anything to jeopardize the situation. Some of these boats have secret fishing spots or secret methods of catching fish. Don't reveal any boat secrets to others. It is best not to discuss your party boat trips with anyone. If anyone asks you questions about where you fished, what kinds of fish were caught, or how the fishing was, refer the person to the captain. Any cooperation problems with deck hands should be referred to the captain.

### On-Board Sampling Tips

1. Sick anglers may be eligible since wet gear hours include any 'rod time' provided by others and catch may be shared in groups which include the sick angler as an eligible licensed angler.

2. Include fish hooked, landed or caught by the skipper and/or deckhands and given to and kept by the customers. Do not take your friends along as assistants.
3. Check to see if there are "boat fish" (i.e., those in the crew's container). Some of these may be fish caught by anglers and kept by the crew. Record their lengths on the Discarded Fish Form. Do not make an angler interview for boat fish.
4. Check to see if there are "boat fish" (i.e., those in the crew's container). Some of these may be fish caught by anglers and kept by the crew. Record their lengths on the Discarded Fish Form. Do not make an angler interview for boat fish.
5. Count eligible angler caught boat-fish as type 2 catch with disposition coded as "gave away" (do not measure any of the boat-fish on angler forms, they are type 2). Type 2 boat fish catch numbers may have to be distributed evenly across all anglers if they are not tracked. Fish caught and kept by the crew are excluded from the boat fish; you may perform a special Fishery 'C' interview instead.
6. Group catches of rockfish or other species on trips for a large species such as halibut or some other "trophy fish": all the fish must be listed as a group catch, including the "trophy fish". Anglers can usually identify his or her own "trophy fish" but cannot separate the rest of their catch.
7. Fish filleted at sea count as type 2 fish unless the fish are identified and counted by you.
8. Do not interfere with the filleting process. Try not to hold up the filleters. This is not appreciated!
9. Eligible anglers without catch should have interviews completed. Include a representative sample of unsuccessful anglers to prevent inflating the average catch per angler.
10. Do not record fish to be released as type 3 records, the length goes on the Discarded Fish Form, and the number of fish goes on the angler's form as type 2 (the angler should report this at the end of the trip).
11. If the sea conditions prevent accurate measurements, do not attempt to weigh the catch. Weigh unusual or important management species when the sea conditions allow.
12. Thank the captain and crew.

## THE CPFV FORM

The CPFV form mainly collects the fishing locations and species counts for observed anglers on-board CPFV trips. Above sections discuss PC assignments as well as CPFV survey procedures which include the usage of other forms. We recommend that the new sampler read those sections before learning about the coding form.

The CPFV form has front and back sides to cover a number of fishing locations in columns and species in rows. There is a CPFV additional sheet for when the number of locations or species exceeds the row or column capacity of the form. For trips that use the additional sheet the Sampler will code the location number or species numbers for those observations beyond the capacity of the primary form. Information from the top of the additional sheet will be used to link the data with the primary sheet and the angler interviews and any other data collected on that trip.

### CPFV Form Layout

The form has three major areas for data on the boat trip, the locations fished in columns and the catch species in rows. The location columns have three sub-areas for coordinate, physical and pinniped data.

- Boat assignment data (top left of form)
- Trip location data (top right columns)
  - Coordinate data (top of column)
  - Physical data (center of column)
  - Pinniped data (bottom of column)
- Species count data (bottom rows)

## The CPFV Form

### Boat Assignment Data

Sheet <input type="text"/> of <input type="text"/>	
Assign	Stops: Spp:
Sampler=	
Date	
Boat #	
=Boat	
Cnty=	
Site / Lndg=	
Elg.Angs	
Trip Type=	
Area	=Capt

There are 16 boat assignment data items, which are used both to link the data to the regular CRFS interviews and to provide some unique information about the CPFV trip. The name of the boat, landing and captain name should be clearly printed for data entry. All of these items are required to be completed for the form to be acceptable.

Right justify these items and leave leading spaces blank. Do not code leading zeros. Be sure to code the boat name, county name, landing, triptype, and captain name.

### Fishing Location Data

There are 19 items for each location record. There are columns of location records on right side of the form on both sides of the sheet. Each fishing stop (with "lines down" ion the water) will have a location record completed. Not all of the items are required at each stop.

The location data records are in three sections with the data types clustered:

START	Lat	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
	Lon 1	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
	Time	<input type="text"/>				
END	Lat	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
	Lon 1	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
	Time	<input type="text"/>	<input type="text"/>	<input type="text"/>	Gfmt	<input type="text"/>

checked for accuracy.

**Physical Data** – depths, temperatures, observed anglers and fishing type.

max min	Depths	<input type="text"/>	<input type="text"/>
max min	Temps	<input type="text"/>	<input type="text"/>
	ObsAng	<input type="text"/>	Ftyp

temperature. This is important in the management of some surface fisheries.

**2C. Pinniped Data** – presence and damage from seals and sea lions is

	1=Yes 2=No		Seal		Movd
LOST	Gear Time		G		T
	Bait Fish		B		F

observed by location. This is data collected for the observed angler group. The observed angler group should not change during fishing at a location in order to include someone who is being impacted by a seal or sea lion. You pick your group at random, if it is not the whole boat load, and stick with it. Changing your group because of non-observed angler catch or pinniped impacts is an obvious sampling bias. Record the total number of lost gear, bait, time and fish for your observed angler group.

**Species Count Data**

There are rows for species counts for each location column. There are 2 items for each species to record for the entire row: the common name and the species code. Either the 3 digit or 10 digit codes may be used. On the back of the form a smaller space is provided to write a shorthand name for the species for each row. The form may be bent over so that species names can be easily transcribed to the rear of the form.

	STOP#	1	2	3	4	5
1	KEPT REL alive (dead)					
2	KEPT REL alive (dead)					

For each location column there are 3 items to record for each species row: the number of fish kept, the number of fish released dead and released alive. The numbers of fish must be for the number of observed anglers in the location column. The catch per unit of effort for each species at each location will be calculated by dividing the number of fish kept or returned by the number of observed anglers.

**Recording Numbers Kept and Returned**

dot-line system		
1	•	6 1̣
2	:	7 1̣1̣
3	∴	8 1̣1̣1̣
4	∴∴	9 1̣1̣1̣1̣
5	1̣	10 1̣1̣1̣1̣1̣

The method used for recording the count for fish kept or returned is called the “dot-line system”. The system allows for a count up to ten in less space than the more common “count-mark” (i.e. IIII) system does going to five. It is desirable that when editing your forms for the day that the Sampler will decode the dot line system by writing the actual number to the right. The key to this system is printed on the back of the CPFV Form.

**Refused Items**

The only items that you can have “refused” are probably due to access problems to the boats electronics, even if you carry a GPS receiver with you on the boat. The possible refused items are:

**The CPFV Form**

- latitude and longitude coordinates with GFormat
- bottom depth & temperature

The captain may decide that a location is ‘secret’ and not want you to record it or the depth.



All other items are dependant on the Sampler monitoring activity on the boat and may not be coded as ‘refused’. If the sampler fails to collect data that is expected to be observed and recorded on this form, then we code it as don’t know. It is expected that the Sampler will rarely be unable to collect the remaining information for an on-board fishing location. In cases where the sampler is unable to determine sampler dependent information the item(s) may be coded as “don’t know” and explained somewhere on the form and on the assignment summary.

Items will be coded with all nines (i.e. “99” or “999” etc.) for “refused” or with nines with a trailing eight (i.e. “98” or “998” etc.) for “don’t know”.

**CPFV On-Board Location Form Item by Item Instructions**


These item by item instructions have no item numbers printed on the form. The order followed will be by sections with element names for reference. The location form is in three main sections, assignment data and location records and species rows:

FIELD NAME	INSTRUCTIONS	CODES AND FORMATS
<b>BOAT ASSIGNMENT</b>		
Sheet __ of __	This is used to indicate total number of sheets which are stapled together. The assignment data must be the same on both forms.	“1st of 2” on the first form “2nd of 2” on the second form.
Assignment #	This is the same as on the Assignment Summary Form and is used for data tracking.	Usually ‘1’
Stops	This is the total number of stops on the form(s).	Last Stop # used
Species	This is used to indicate the total number of species coded on the form(s).	Last Species # used
Sampler Code	Use your 3 digit Sampler ID code	100 = Joe Samper
Sampler Name	Print your name to the right of your code.	‘JOE SAMPER’
Date -	This is the same as on the Assignment Summary and is used to classify and track the data.	YYYYMMDD  20070101 = New years day

CRFS Sampler Manual

FIELD NAME	INSTRUCTIONS	CODES AND FORMATS
Boat #	This is CDFG vessel id number of the boat (permit number)	12345 = 'Fish Hoover'
Boat Name	Name of the boat	'FISH HOOVER'
County Code	This is the same numeric county code of the sample site, same as on the Assignment Summary Form	111= 'Ventura'
County	Name of the County in above item to check the county code.	'VENTURA'
Site Code	The numeric site code for the location/landing/boat you are sampling, same as on the Assignment Summary Form.	100= 'Big Harbor' with two landings
Landing	Name of the charter office, harbor, port or "landing" where the boat returned.	'SEASICK SPORTFISHING'
Q. What if the boat does not have a landing? A. Code the name of the site or port.		
Eligible Anglers on Boat	Number of anglers, including crew, who would qualify for a CRFS interview. This excludes crewmembers and passengers who did not intend to fish.	30 = Thirty eligible anglers.
Area	Distance from shore or Mexican waters where the majority of fishing occurred	1= US<3mi – Trips within 3 miles of a shore in US waters 2= US>3mi – Trips beyond 3 miles of a shore in US waters M= Mexico – Trips into Mexican waters.
Trip Type	The trip type is based on the time of day and duration.	1= am1/2 – Morning half day trip 2= pm1/2 – Afternoon half day trip 3= mid1/2 – Middle of the day half day trip 4= twilight – Evening trip 5= 3/4-1day – Three fourths to full day trips 6= overnight – Trips that comes back the next day 7= other – Other types of trips
Captain	Name of the charter boat captain of the trip.	'CAPT. CROOKE'
<b>FISHING LOCATION – Coordinate</b>		
Start Latitude	North latitude in one of the valid formats at the start fishing time.	323055 = 32 degrees 30 minutes and 55 seconds north latitude.


The CPFV Form

FIELD NAME	INSTRUCTIONS	CODES AND FORMATS
		999999 = Captain refusal 999998 = Don't know
Q. What if the batteries on my GPS fail? A. Put in your spare batteries. If your GPS fails, record locations as '999998' = Don't know - keep recording all other items including start and end time.		
Start Longitude	West longitude in one of the valid formats at the start fishing time. The hundreds place is pre-coded to 100 with a "1".	274501 = 127 degrees 45 minutes and 1 second east longitude (gformat=3) 999999 = Captain refusal 999998 = Don't know
Q. What if the captain does not want this location recorded? A. Ask if we can record the location without the seconds (within one mile), otherwise code the location as '999999' but record all other items, including times.		
Start Time	This is "lines down" time. Record the time in 24-hour format when fishing started at a new location.	2400 = midnight 0001 = one minute after
End Latitude	North latitude in one of the valid formats at the end fishing time. An ending location is not necessary if the boat did not travel more than 300 feet or fish for more than 3 minutes.	323091 = 32 degrees 30.91 minutes north latitude. (gformat=1) 999999 = Captain refusal 999998 = Don't know
End Longitude	West longitude in one of the valid formats at the end fishing time. The hundreds place is pre-coded to 100 with a "1". An ending location is not necessary if the boat did not travel more than 300 feet or fish for more than 3 minutes.	276767 = 127.6767 degrees east longitude (gformat=4) 999999 = Captain refusal 999998 = Don't know
		
End Time	This is "lines up" time. Record the time in 24-hour format when fishing ended for this location, troll or drift.	0500 = 5am 1800 = 7pm
Geographic Format	(GFmt) – The measurement units used to record the latitude and longitude coordinates at the start and end fishing times. All four position records must be in the same units. For longitude all fishing locations the hundreds place has been pre-coded with a "1".	The four geographic formats (GFormat) expected to be read from boat GPS and loran equipment (with proper punctuation):  1= Degrees, minutes - DDMM 3= Degrees, minutes, seconds - DDMMSS 4= Decimal Degrees – DD.DDDD
<b>FISHING LOCATION – Physical</b>		
Maximum Bottom Depth	Record the maximum bottom depth in feet. DO	6= six feet. 9998= Don't know

CRFS Sampler Manual

FIELD NAME	INSTRUCTIONS	CODES AND FORMATS
	NOT LEAVE BLANK	9999= Captain refused
Minimum Bottom Depth	Record the minimum bottom depth in feet.	50= fifty feet <blank>=same as maximum.
Q. What if the depth is in the thousands? A. Depth may be recorded as don't know='9998': most tuna fishing takes place offshore in a few thousand feet of water. Depth is required for bottom fishing.		
Maximum Surface Temperature	Record the water temperature in degrees F. DO NOT LEAVE BLANK. This is the maximum water temperature at or near the surface at this location.	52 = fifty two degrees 9998=Don't know 9999= Captain refused
Minimum Surface Temperature	Record the water temperature in degrees F. This is the minimum water temperature at or near the surface at this location.	48 = forty eight degrees <blank>=Same as maximum
Q. What if the temperature sensor is broken? A. Record the first temperature as '9998' at each location and the second one blank. Then draw a line across the page for all drifts without temperature. Write a note saying so in the margin.		
Observed Anglers (ObsAng)	Record the number of anglers observed for the catch counts at this location.	10 = ten anglers observed for catch at this location.
Fishing Type (FTyp)	This is one of the four predefined types of boat movement used for the fishing activity.	1= Free drift (engine not in gear) 2= Stationed (engine in/out of gear to maintain position) 3= Anchored (boat attached to the bottom) 4= Troll (engine in gear and powered to trolling speed)
<b>FISHING LOCATION – Pinniped sub-section</b>		
Seal (Pinniped Present)	For observed anglers, record if seals or sea lions were within 100 yards of the boat during fishing time at this location.	1= Yes (fill remaining boxes) 0= No (leave remaining boxes blank)
Q. What if there is a sea lion within 100 yards, but it is not causing a problem? A. Code 1= 'seal present' and code zeros in the other five boxes.		
Moved Boat (Movd)	Record if the boat left this location due to the presence of seals or sea lions. Some fishing time is required at a location for this to be true, so this box can not be 'yes' if lines were never dropped into the water.	1 = Yes 0= No, did not move <blank>= not applicable
Q. What if the boat moved to a new location but there was a seal present and kept going on to another location? A. Don't record a location with no fishing. This impact is not recorded.		
Gear Lost (G)	Record the total number of	2= lost two sets of gear.

The CPFV Form

FIELD NAME	INSTRUCTIONS	CODES AND FORMATS
	gear setups lost to seals or sea lions during fishing time at this location by the observed anglers.	0= lost no gear <blank>= not applicable
Time Lost (T)	Record the total number of minutes lost to seals or sea lions during fishing time at this location by the observed anglers.	0 = None lost. 10= spent ten minutes moving away. <blank>= not applicable
Bait Lost (B)	Record the total number of observed baits lost to seals or sea lions during fishing time at this location by the observed anglers.	0 = None lost. 3= three baits taken <blank>= not applicable
Fish Lost (F)	Record the total number of hooked sportfish observed lost to seals or sea lions during fishing time at this location by the observed anglers.	0 = None lost. 1= lost one fish <blank>= not applicable
<b>SPECIES CATCH</b>		
Common Name	This is the approved AFS common name.	'BROWN ROCKFISH'
Q. Do I need to write the name of all the species on every page? A. No, but it is a good idea to go by name or code rather than row number. The species code is required to appear only on the first page.		
Species Code	Use the 5 letter CRFS alpha code or, if not listed, use the 3 digit RecFIN code	RFBRN = brown rockfish 537=yellow bobo
Number Kept	Record the number of fish of species <i>kept</i> at this location by the observed anglers.	: 2= two kept <blank> = None kept.
Q. Should I write zeros in all the location where none of a species was caught? A. No, it is not necessary and doing so slows down data entry for that form.		
Number Released Alive (REL-alive)	Record the number of fish of species <i>released alive</i> at this location by the observed anglers.	" . 1 " = one released alive <blank> = None released.
Number Released Dead (REL-dead)	Record the number of fish of species <i>released dead</i> at this location by the observed anglers. Fish that are alive but are obviously not going to survive (due to severe wounding or projecting air bladder, for example) may be coded as dead.	" <input checked="" type="checkbox"/> 10 " = ten released dead <blank> = None released. 

## CPFV Form Coding Tips

## Trolling between Locations

Generally, when fishing for tuna in the south, the boat will troll for billfish with 4 rods until a school of tuna is located. If a tuna gets hooked on the troll, the boat begins a drift, and all anglers may start to fish. On the boat location form, you should be recording a new "stop" for every drift and troll. Make sure that you bring extra data forms to record locations. For trolled locations, the number of observed anglers is the number of trolling rods (usually 4). For drifts, randomly select 10 (or less) anglers that you can observe accurately. You may need to cut down the number of anglers you are observing if the fishing becomes chaotic.

Q. How do I compute accurate wet gear hours on the angler form for trips with trolling with a few rods between fishing locations?

A. Wet gear hours fishing: = total drift time + (total troll-rod time / # of eligible anglers). For troll locations, there generally are only a few rods set up. You will need to add average troll rod time per angler to the normal drift fishing time. To do this for trips where all eligible anglers get some troll time; 1) add up the total troll fishing time for the trip, 2) multiply this number by the number of troll rods, and 3) Divide the result (total troll rod time) by the number of eligible anglers, this is the additional wet gear hours.

## Non Stop trolling

For an entire trip of trolling continuously, the sampler may record starts and stops hourly or when the boat makes a major change in heading, such as when reversing direction along a stretch of coast

### Specific Editing Checks

1. Leave leading zeros blank.
2. Species and names must be listed on first page.
3. Make sure the gformat matches the location in 'seconds' (or '100<sup>th</sup> minute').
4. Starting time and depth should not be left blank.
5. Starting and ending coordinates must be provided (as well as starting and ending times for all troll and drift trips).
6. If seal is present (=1) the moved and lost boxes cannot be left blank.
7. If no fish were caught, leave field blank. Do not code as "0".
8. Fill in stop numbers and species numbers on any additional sheets.
9. Boat name, landing name and captain's name cannot be left blank.

### Specific Editing Checks

[illegible]

## THE DISCARDED FISH FORM



This form is used to code the lengths and weights for fish that are not retained by anglers (type 2 catch). These fish are available to be measured during fishing on observed CPFV trips or when encountering incomplete shore mode fishing trips. Data from this form is used to estimate mean weight and metric tons for fish returned dead and alive.

### Introduction to the Discarded Fish Form

The primary purpose of this measurement data collection is to estimate the total metric tons of fish *discarded* alive and *discarded* dead. In the past, the mean weights of kept fish were used to calculate all weight estimates. However, the size of discarded fish may differ from retained catch, leading to a potential bias if we used kept fish sizes are used to estimate discarded catch.

Management measures have effects on the size of discarded fish. Species with minimum size restrictions cause smaller fish to be discarded. Species with area closures (by depth) may have the opposite (or no) effect on the mean weight of discards. Illegal fish may have no kept catch. Therefore, the only sources of measurements for illegal fish are through discards.

Length measurements take priority because weighing live fish can increase mortality. Only weigh fish when they will be discarded dead. Weights can be calculated from lengths based on regression functions, so weight is not required.

Location of discard on-board CPFV trips ('stop #' on the form) is collected because management methods include latitude, distance from shore and depth criteria. The CPFV stop number links the fish size to these criteria for management analysis. For example, bottom depth may be used to apply additional mortality to the rockfish released alive that are susceptible to barotrauma.

The sampler ID, subregion and date are documented for quality control, data storage, and tracking purposes. For example, the date and fish sex can be used to monitor size of released fish that seasonally migrate into different depths during reproductive cycles.

### Data Collection

At least one form a month can be used when discards are measured from shore. However, each onboard-observed PC trips requires a separate Discard Forms for each PC boat trip. This form cannot be used to calculate catch rates or assign numbers of fish to anglers. Only trips aboard PC boats will

### The Discarded Fish Form

be merged with a sampling assignment. Shore data will be used by fishing mode.

Weights may be calculated from lengths, so the priority is to collect accurate lengths. The data will be used to calculate appropriate weight estimates for the estimates of fish reported by anglers as discarded alive or dead for a mode of fishing.

### Representative Sampling of Discards

There may be times when the numbers of discards to measure or the opportunity to measure discards changes. The numbers of fish and sizes available may also affect your chance and opportunity to measure fish. It is important not to let the size of the fish influence your decision to measure a discard. Unusually small or large size fish should not affect your decision to measure the discard.

For example, there may be times when there are many small fish and other times when there are fewer larger fish of a species being discarded. Under varying conditions, it would be best to use uniform systematic sampling rates (every Nth fish) to collect a representative selection. Measurements should be representative of the numbers of fish being discarded. Therefore, in the above example, it would NOT be proper to sample *all* of the larger fish, but only a *few* of the smaller fish. Doing so may over-estimate the mean weight of a species of discarded fish.



### Sampling Discards Aboard CPFV Trips

Most of the data using this form are expected to come from observed party or charter boat trips, since the Sampler will have access to discarded fish during fishing. You should inform anglers of your intention to measure discarded fish before they are returned to the water. It may be difficult or impossible to keep up with the discarded fish at times. If fish discards are excessive, many may be thrown back before you measure them. Do not allow live fish to remain aboard waiting to be measured, as this may give the impression that we are allowing fish to sustain trauma or die needlessly.

It is very important to record the STOP # for all the fish on PC trips. Do not allow the measurement of discards to cause you to miss observing the numbers of fish caught by location, which is a higher priority.

### Recording Discards for Uninterviewed Anglers

The form is unique because it has some angler eligibility exceptions relative to the angler form. You may:

- Record measurements of fish that will be thrown back dead or alive by *any* angler encountered (including uninterviewed anglers).

- Record measurements of fish that are caught by anglers and retained by the boat crew. Known as “boat fish”, these fish are not thrown overboard but are considered ‘discarded’.

Q. Are crew caught fish also boat fish?

A. Fish caught and kept by the crew are excluded from the boat fish; you may perform a special Fishery ‘C’ interview instead and include them in the type 3 records.

### Sampling Discards Ashore

It is not expected that you will get many discards from shore anglers and from dockside boat anglers since anglers are often not encountered until their fishing is complete. However, there will be occasions when you will witness a fish being discarded. In this case, record a type 2 fish (on the angler form) coded to the species and record the *measurement* on the Discarded Fish Form. Do not record a more general taxonomic level than what you have identified, since “species specific” information is the goal.

### Eligible Fish



There are three main dispositions of fish that may be measured for this form:

- Retained by boat (disposition 0)
- Thrown back alive (disposition 1)
- Thrown back dead (disposition 6)

- Please note: You may include disposition 6 (thrown back dead or used for bait) fish from a Type 3 record, but only if they were NOT measured on the CRFS angler form. Avoid double measurements.

The angler interview and catch census may include counts of discarded fish listed as type 2 records. Type 2 records are counts of fish reported by the angler as normally unavailable for examination by the Sampler. The Discarded Fish form is the place to record the lengths and weights of type 2 fish that are examined.

Priority should be given to fish that are under management control. These would be fish thrown back because they are not legal. Your Supervisor has a list of these species of concern.

### Ineligible or Duplicate Fish

Never list a discarded fish on this form if it has already been measured as a Type 3 record on an angler interview. Fish that are cut up for bait (disposition 4), filleted (disposition 3), taken home or given to others (disposition 5) are NOT discarded fish and should not be listed on this form.

Q. What if boat fish are distributed to anglers after the interviews are complete?

### The Discarded Fish Form

A. Move the fish records from the discard form to the angler forms randomly. Do not submit fish distributed to anglers on the discard form. Avoid double measurements.

It is important not to record two measurements for one fish. There is a possibility of recording the measurements of the same fish on a type 3 record as well as on the Discarded Fish Form (disposition 6 = ‘thrown back dead’ fish are a good example). In these cases, Type 3 records take priority over the Discarded Fish Form for the recording of fish measurements.

Fish from the Discarded Fish Form can be recorded as type 2 (and, in some cases, Type 3 records) and vice versa. Since only measurements (not the *number* of fish) are listed on the discarded fish form, consider measurements as the only source of possible duplicates. Numbers of fish on type 2 or type 3 records should not be changed because of a measurement on the Discarded Fish form.

### Discard Form Layout

The discard form has two areas; the header for describing the data and the measurement records.

The header area contains information that links the data to the fishing mode, geographic subregion, water area and date. For on-board CPFV trips the header also links to the assignment, vessel and fishing location (stop #).

DISCARDED FISH																											
Pg #		of #		1. Interviewer		Year		Month		Day		4. Form Date															
				2. Subregion		3. Wave		Assign #		5. Vessel Name																	
TYPE 0 - EXAMINED DISCARDED CATCH MEASUREMENTS										*Species Code		*Modex		*Area		*Fork Len. (mm)		Weight (kg)		*Dispo		Sex		CPFV		Stop #	
1																											

#### Header area of Discard Form

\* Dispo: What happened to the fish? - 0=Retained by boat, 1=Thrown back alive, 6=Thrown back dead

MODEX - 1=MM 2=BB 6=PC 7=PR

Sex - 1=male 2=female

AREAX - 1=Ocean < 3 miles 2=Ocean > 3 miles 5=Inland

Subregion - 1=S.CA 2=N.CA 3=OR 4=WA

#### Format Prompts at bottom of discard form

The fish records (type 0 records) area is arranged in rows with one row per measurement. Key items are marked with a \* and are mandatory. There is space on each side of the form for 30 measurements, for a total of 60 measured discards.

### Major Mode and Area

The MODEX and AREAX are coded on the discard form and are known as the *major mode* and *major area* and are used for estimation and assignment allocation. This is different from the fishing area and mode on the Angler Form.

## CRFS Sampler Manual

The four *major modes*:

- 1 = Man Made (MM),
- 2 = Beach/Bank (BB),
- 6 = Party/Charter boats (PC) and
- 7 = Private/Rental boats (PR).

The three *major areas*:

- 1 = Ocean outside of three miles (EEZ - Exclusive Economic Zone),
- 2 = Ocean inside of three miles (STS - State Territorial Seas) and
- 5 = Inland areas (bay, river, sound, etc.).

Since only the major modes and areas are used for estimation of the mean weights of discarded fish, the detail of the mode's area (as used on the angler form) is not needed.

The footer of the form contains a key to the column values for major fishing mode, major water area, fish sex, and fish disposition. There is also a key to the header item geographic subregion.

### Discard Form Item by Item Instructions

The item-by-item instructions explain the coding of the various data elements on the form. \* Items are NEVER left blank.

FIELD NAME	INSTRUCTIONS	CODES AND FORMATS
HEADER		
Page _of _	Is used to indicate the number of <i>multiple</i> forms. Use the back of the current form before starting any additional sheets.	Page 1 of 2 Page 2 of 2
*Sampler ID	Your Sampler <i>id</i> code and is required for tracking the form and its data.	100= Joe Smith
*Subregion	The one digit code for the geographic subregion sampled. Do not mix data from differing subregions on one form. Southern California is San Diego to Santa Barbara county. Northern California is from San Luis Obispo to Del Norte county.	1 = S. CA 2 = N. CA
Q. What if the CPFV sample was for Mexico, then what? A. Put the subregion where the boat landed.		
*Form Date	The date of the PC (Observed CPFV) trip, shore mode or PR data. Do not mix data from two PC trips on one form.	YYYYMMDD 20070704 = Fourth of July
*Assignment #	Enter only for CPFV trips. Enter the one digit trip assn #. This is always '1' unless you sampled two boats on-board on the same date.	1= First trip sampled on date.

## The Discarded Fish Form

FIELD NAME	INSTRUCTIONS	CODES AND FORMATS
*Vessel Name	CPFV name for PC (Observed CPFV) trips only. Data from any other assignment or trip should not be put on this form.	'FISH SNIFFER'
RECORDS		
Common Name	The AFS accepted common name, not a slang name.	'BLACK ROCKFISH'
*Species Code	The alpha5 or RecFIN 3 digit code for the species of the discarded fish you examined and measured. See species lists in this manual.	RFBLK= black rockfish 537= yellow bobo
*Modex	The mode of the type of fishing. The definitions are on the bottom of the Discard Form.	1 = Man Made (MM), 2 = Beach/Bank (BB), 6 = Party/Charter boats (PC) and 7 = Private/Rental boats (PR).
*Areax	The location of the fishing by major water area. The definitions are on the bottom of the Discard Form.	2 = Ocean outside of three miles (EEZ - Exclusive Economic Zone), 1 = Ocean inside of three miles (STS - State Territorial Seas) and 5 = Inland areas (bay, river, sound, etc.).
*Fork	Length in mm of the discarded fish.	201 mm fork length <b>length is required</b>
Weight	The weight in kg of the discarded fish. Only weigh dead fish	1.15 kg <blank>= only got a length
*Disposition	This is the fate of this fish. The definitions are printed on the bottom of the Discard Form. Fish that are obviously not going to survive may be coded as dead.	0= boat fish 1= Thrown back alive 6= Thrown back dead
Q. What is the disposition of boat fish thrown back dead to deter sea lions? A. Those would be boat fish.		
Sex	The gender of the fish when it can be determined. This is required for species with external sexual characteristics: e.g. CA sheephead, sharks, greenlings, etc	<blank>= undetermined M = Male F = Female T= Transitional sheephead
Q. What if I have some measurements of type 3 fish from an interview that had a key item refused, can I salvage the fish data using this form? A. No, the fish on the Discard form should not be 'retained' catch. The measurements are used to estimate the metric tons of discarded fish. Code the Angler form as a status 0 (zero) interview and turn it in with your weekly paperwork.		
*CPFV Stop	The fishing location or "stop" number copied from the CPFV	<blank>= not applicable 1= first fishing location

FIELD NAME	INSTRUCTIONS	CODES AND FORMATS
	Location Form. Onboard PC observers will collect the bulk of the discard length data. The stop number is required for CPFV trips.	

### ***Discard Form Coding Tips***

If you were able to weigh and/or measure a fish on the Angler Form that was going to be thrown back alive, here's how to do it:

- Since fish that are thrown back alive can only be listed as type 2 records, include the fish numbers with the type 2 records (not type 3).
- List the fish measurements on a Discarded Fish Form with length/weight, etc.

While it may seem logical to list all fish that were weighed and measured as type 3, it must be remembered that fish thrown back alive are ALWAYS type 2 (and their measurements would be coded on an accompanying discarded fish form or not at all).

### **Usage Tips**

1. Fill this form out for any fish that are discarded and measured by any angler.
2. Fish on this form may be from any anglers interviewed or not
3. Fish on this form may NOT be measured Type 3 fish on an angler form
4. Fish on this form CAN be Type 2 fish on an angler form
5. Turn in this form for EACH separate PC trip with measured discards
6. Turn in this form at least monthly for all shore and PR modes with discards.
7. Fill in the DATE for the PC trip or the ending date for shore and PR data
8. Leave the Weight, Sex and Stop number BLANK if not applicable
9. The LENGTH of the fish is always required
10. The coding for AREAX and MODEX differ from the angler form
11. The SPECIES CODE may be either the alpha5 or 3 digit codes

### **Data Entry Tips**

1. Arrows or quotes may be used to show repeats of data (so long as the arrow cannot be easily mistaken for "1").
2. Blank cells may be used to show missing non-key items.
3. If a weight was not collected, leave weight field blank.
4. Shorthand may be used to code the various common names.
5. Leading zeros are omitted from lengths, weights and CPFV stops.

### **Specific Editing Checks**

1. Each species has a length or weight measurement
2. Missing weights are blank (not 9999)
3. Every species has a major mode and area
4. Measurement does not appear on any other form

## Discarded Fish Form Examples

These examples serve to illustrate complete and correctly coded forms. There are various time saving shortcuts that may be used to avoid repeated coding or coding of not applicable items.

Pg #  of #  1 2 Subregion  Assign #  5 Vessel Name  Kooktown 6

**TYPE 0 - EXAMINED DISCARDED CATCH MEASUREMENTS**

	* Species	* Modex	* Area	* Fork Len. (mm)	Weight (kg)	* Dispo	Sex	CPFV Stop #
1	Chinook	S A L C K	6 1	4 5 0	1 9 5	1 M	1	1
2				5 2 0	2 2 5			2
3				4 1 2	2 1 0			3
4				3 2 1			F	4
5				4 3 3				5
6				4 8 9				6
7				4 7 6				7

Example 2

**DISCARDED FISH**

Pg #  of #  1 2 0 1 Interviewer  2 0 0 7 0 5 3 0 4 Form Date

3 2 Subregion  Assign #  5 Vessel Name  Kooktown 6

**TYPE 0 - EXAMINED DISCARDED CATCH MEASUREMENTS**

	* Species	* Modex	* Area	* Fork Len. (mm)	Weight (kg)	* Dispo	Sex	CPFV Stop #
1	Black RF	R F B L K	1 2	2 5 0	2 6	1		1
2				2 2 0	1 5			2
3	MM			2 1 2	1 3			3
4				2 2 1	1 4			4
5				2 3 3	1 8			5
6	BB			2 8 9	2 5			6
7				2 7 6	2 4			7
8	ocean Redtail SP	S P R T L	2 1	3 0 7	6 7	1 F		8
9	<3 miles	"	"	3 1 3	6 8	6 F		9
10	Kelp G	G R N K P	7 1	2 7 6	3 0	1 M		10
11	PR	"	"	3 6 4	3 8	1 F		11
12	Libgood	L N G C D	7 1	3 4 5	9 9 9 9	1		12
13	ocean Redtail SP	S P R T L	7 1	2 9 8	6 5	6 F		13
14	>3 miles Kelp G	G R N K P	7 2	1 7 9	1 0	1 F		14
15	Sheep	S H E E P	7 1	3 1 1	5 9	6 T		15

## The Discarded Fish Form

## CREEL SURVEY RECORDS

## TYPE 2 REPORTED OR UNAVAILABLE CATCH (ONLY FOR THE ANGLER ON THIS FORM)

	Common Name	* Species	* No. of Fish	* Dispo	Location
1	SHEEPHEAD	S H E E P	0 0 1	1	1
2	KELP GREENLING	G R N K P	0 0 2	1	2
3					3
4					4
5					5
6					6

IF A MEASURED FISH IS THROWN BACK ALIVE OR RETAINED BY BOAT, IT SHOULD BE LISTED AS TYPE 2 CATCH ON THE ANGLER FORM (IF IT CAN BE ATTRIBUTED TO AN INTERVIEWED ANGLER) AND THE MEASUREMENT SHOULD BE LISTED ON THE DISCARD FORM.

IF A MEASURED FISH IS THROWN BACK DEAD, BUT IT CAN BE ATTRIBUTED TO AN INTERVIEWED ANGLER, IT SHOULD BE LISTED ON THAT ANGLER'S FORM AS TYPE 3 CATCH AND "NOT" BE LISTED ON THE DISCARD FORM.

IF A MEASURED FISH IS THROWN BACK DEAD, BUT IT CANNOT BE ATTRIBUTED TO AN INTERVIEWED ANGLER, IT SHOULD BE LISTED DISCARD FORM ONLY.

**DISCARDED FISH**

Pg #  of #  1 2 0 1 Interviewer  2 0 0 7 0 1 0 1 Date

1 2 Subregion  Assign #  5 Vessel Name  Kooktown 6

**TYPE 0 - EXAMINED DISCARDED CATCH MEASUREMENTS**

	* Species	* Modex	* Area	* Fork Len. (mm)	Weight (kg)	* Dispo	Sex	CPFV Stop #
1	BLACK ROCKFISH	R F B L K	6 1	2 9 7	4 4	0		1
2	KELP GREENLING	G R N K P		2 4 9	2 0	1 F		2
3				2 2 6	1 5		M	3
4	BLUE ROCKFISH	R F B L U		3 4 5	6 9			4
5	SHEEPHEAD	S H E E P		3 5 4	7 5		F	5

## THE VESSEL CHECK FORM

CRFS Samplers in California are to attempt physical checks of PC vessels while visiting PC sites on assignment, sampling PC boats dockside or on-board and during pressure checks. This information will be used to compare and adjust activity reported in the PC Phone Survey (PCPS). The data is also used to update and correct our vessel lists and report problems with boats we are attempting to sample anglers on-board or dockside. We may use these records to validate other sources of data.

Samplers should be familiar with all PC vessels docking or launching from the harbors in their sampling area. While in a harbor, attempt to check on PC boats to determine what they are doing. Make your vessel check priority highest for boats listed (drawn) for the weekly phone survey. Your supervisor can provide you with a list of vessels that have been selected each week in your area in advance. The Sampler should check out operating PC vessels they don't recognize to see if we have them listed. All these types of checks are recorded on the vessel check form.

Send any used vessel check forms in with your other paper work each Monday. Do not mail your forms in late!



### Introduction to the Vessel Check

CPFV fishing effort estimates in the CRFS are based on a weekly telephone survey (PCPS) which uses a relatively complete vessel directory as a sampling frame for precise and timely estimates of passenger vessel fishing effort. The Vessel Check Form is used in the PCPS by collecting data used to adjust for misreporting.

### Purpose

Vessel checks are used to document any under-reporting or over-reporting of fishing effort by the vessel representative on the telephone survey. Checks of Party and Charter (PC) vessels by CRFS Samplers will be compared with the reported trips from vessels selected in the PCPS. The comparison will be used to adjust (bias correct) the PCPS estimates of effort. Checks will also be used to identify vessels' geographic location, report their ability to be boarded to observe catch, indicate a change in contact information (phone or operator name) and document changes in status.

### Data Collection

A ten to fifty percent random selection of all active PC vessels is drawn each week by CRFS District for the PCPS. The comparison and adjustment in the PCPS is only possible for checks that match vessels that have been drawn for the week. Checks of vessels not drawn for that week are not used in the

### The Vessel Check Form

PCPS. When the vessel is out, the Sampler will determine what activity the vessel is engaged in.

The Sampler should be able to identify all passenger vessels at visited PC sites. The Sampler should then be able to identify which of those vessels were drawn for the current sample week and give them a high priority for vessel checks. The other vessels may also be checked, time allowing, although those checks are not used for comparisons at this time. This additional information may be compared with the logbook data (for logbook validation) and helps track vessels for future survey contacts. Vessel Check Forms are submitted to the Supervisor weekly.

### Vessel Lists

Vessel draws for all the weeks in a two-month 'wave' are made for the PCPS two weeks before the start of the wave. The ten to fifty percent weekly sample of all active vessels in each CRFS district includes uncooperative vessels that do not yet participate in the PCPS but are actively fishing. It is important to check the activity of these vessels as well. Weekly draws are made available in the RecFIN system for CRFS supervisors to get from the internet. Samplers may be provided with three lists:

- 1) a list of all vessels by CRFS district for the wave
- 2) a list of drawn vessels by CRFS district and week
- 3) a list of vessels that we cannot contact by phone and need your help finding and getting a name and phone number (contact information) and/or cooperation.

Samplers will use the drawn vessel list to identify the higher priority boats to be validated each week with vessel checks.

### Drawn Vessels

The drawn vessel list includes the week number, survey-specific vessel ID, the vessel name, documentation numbers, angler capacity, vessel length, county of operation, site of operation and the vessel week starting and ending dates (see Figure 1.1). It is recommended that Samplers attempt to visit the ports of each drawn boat at least one day during the vessel week to check activity. The vessel week is defined as Monday through Sunday. The PCPS telephone interviews on the drawn vessels begin on the Monday after the end of the vessel week.

### Show Vessels Drawn for Effort Survey

District = South for Wave 3, 2006

WEEK	VSL_ID	NAME	NUM1	CDPG#	ANGS	LEN	CNTY	LNDG	START DAY	END DAY
25	6000013	ADVANCE	267908	497	25	50	73	Helgren's	20060619	20060625
24	6000018	AMERICAN ANGLER	691753	39359	35	81.5973999	PT	Loma Sportfishing	20060612	20060618
19	6000019	AMIGO	547850	14621	48	62	59	Newport Landing	20060508	20060514
19	6000022	Apollo	582718	28881	45	59	73	Fisherman's/Sea Land	20060508	20060514
25	6000023	Scorpio	248084	7106	45	52	37	22nd Street	20060619	20060625
23	6000028	AZTEC	572979	26957	54	65	73	Seaforth Sportfishing	20060605	20060611
24	6000031	Baja Dream	501914	20302	6	55	73	Point Loma Sportfishing	20060612	20060618
21	6000033	Battlewagon	546535	54465	8	44	73		20060522	20060528
26	6000033	Battlewagon	546535	54465	8	44	73		20060626	20060702
26	6000038	BETTY O	266881	10726	23	32.5	37	Redondo Sportfishing	20060626	20060702
21	6000039	BETTY O	221463	4990	68	59	37	Marina Del Rey Sport	20060522	20060528

## CRFS Sampler Manual

Example of drawn vessel list for vessel validation (partial list).

### Vessels not Drawn

Vessels that have not been selected in the draw for the week are eligible for vessel checks. All vessels observed or known to be out fishing or not fishing can be checked at any time. Vessels you see on the water while on-board another vessel can be recorded on the Vessel Check Form.

### Show Good Vessels Used for Effort Survey

District = South for Wave 3, 2006

VSL ID	NAME	PERM	AMOS	LEN	CHTY	COOP	LHDG	COMMENT
6000013	ADVANCE	497	25	50	73	0	Helgren's	refused on 11/13/03
6000015	ALICIA	11706	24	43	73	0	H & H	Refused to participate (03/01). Refused again on 1/29
6000016	ALFIE	39996	26	52	37	1	N/A	Only does charters ( Sailboat; no motor )
6000018	AMERICAN ANGLER	39159	35	81.59739991	0	1	St. Louis Sportfishing	Send stamped envelope Do not call landing
6000019	AMIGO	14621	40	62	59	1	Newport Landing	Newport Landing reversed refusal 10/30/01 (com'l #
6000021	Apollis	18881	45	59	73	0	Fisherman's/Sea Land	Sold by Decission to Steamer 08/10/05--Refused for at
6000023	Scorpio	7106	45	52	37	0	2nd Street	Own 5 boats; 2 charters ( 3ad 6000550 & Scorpio 60000
6000025	ARISTOTAT	29030	6	45	73	0	Icelandia Sportfishing	Refused 5/06/02
6000028	ATTEC	24957	54	65	73	1	Seaforth Sportfishing	
6000029	Bad Attitude	48404	6	31	37	1	Catalina	as of 08/25/05 his boat is inactive due to maintenance

Example of list of all active vessels (partial list).

### Show Bad Vessels

District = South for Wave 3, 2006

VSL ID	NAME	PERM	AMOS	LEN	CHTY	ELIG	INFO	COMMENT
6000014	ALEXEE	51245	6	38	73	1	1	dupo to this master is 6000704/ landing has asked for us to at-
6000030	Bad Influence	49185	6	38	37	1	1	Do not call landing -- no contact phone #
6000056	Breeters	54461	12	68	73	1	1	no contact number or address
6000066	Capt Hook	49199		25	59	1	1	No contact phone number - Barton Boyd also owns Capt Hook
6000067	Capt Hook II	51249	6	58	59	1	1	No contact phone # ; also owns Capt Hook 6000066 Dup to this m
6000093	CITY OF LONG BEACH	30355	147	59	37	1	1	Do not call landing! 05/05/05 (is this an old note?)
6000134	Fin Fever	34527	6	44	59	1	1	Judy and John McCarty have the boat up & sale, non-op 02/15/06

Example of list of vessels needing contact information (partial list).



### Scheduling Checks

Validation checks should be coordinated with scheduled CRFS survey assignments to minimize additional travel time and mileage. Samplers should attempt to do checks with all PC vessels when landings with multiple vessels are visited. Priority should be given to vessels that have been drawn in the PCPS for that week. Vessel checks may occur during regular assignments to PC sites, during site effort pressure checks, on the way to or from assignments at other sites (and modes) or during special "validation assignments" that may be provided to Samplers by their supervisors.

The Sampler should attempt visits to the principal port or access site from which the vessel usually operates during the time of day when the vessel is most likely to have taken passengers fishing. Vessel validation checks should be conducted so that visits to ports of drawn vessels are attempted at least once a week, with weekend days and weekdays both represented among all vessels, if possible. Vessel activity observed from nearby sites, such as boats exiting or entering ports at jetties may also be recorded as a vessel check record.

The Sampler should not compromise the goal of conducting CRFS assignments or validating other boats. This means that you are not required

## The Vessel Check Form

to check all vessels every time you sample or pass by a PC site. Samplers will have to make some checks. Samplers should consider checks on each vessel once a week as the upper limit and one landing checked a week (on weeks with an assignment near or at a PC site) as the lower limit. This may require Samplers to decide which sites and what order they are visited each day during the vessel week. Your Supervisor may limit your validation visit time or restrict the amount of time you can wait for a vessel to return from an unknown activity.



### Docked Status

Upon visiting the vessel's access site, the Sampler should observe and record whether the vessel is "out" or "in" and record both the date and time of day of that observation. The visual check may work best with vessels that are assigned to a usual place on docks.

Vessels not assigned a permanent boat slip or dock number may require searching the site to determine activity. The Sampler may try to determine if a trailered six-pack boat has been launched from a designated principal port location. If a reliable source is available, ask them what passenger boats have been launched that day and if possible get them to identify the boat trailer and vehicle; document the trailer and vehicle information so that they can be easily spotted for future validation visits.

### Activity Determination

If the vessel is out, the Sampler should try to determine what activity the vessel is engaged in. Activities include passenger fishing, other (non-fishing) passenger trips and non-passenger trips such as vessel maintenance. In order to do this, the Sampler may speak to a reliable source such as a marina or landing operator or booking agent. If the source wants to know why you need this information, be courteous and explain that ***"I am documenting the time of day for charter or party boat activity in order to improve CRFS sampling and estimates."***

Try to avoid making excessive direct contact with vessel captains or PCPS representative who report trips in the phone survey, if possible. If they have already been contacted for the phone survey, your presence may influence their fishing effort reports on the telephone for that day. If questioned by the PCPS representative, you may explain that you are trying to ***"update site effort levels in order to improve our sampling distribution among sites"***. Do not explain that you are checking for misreporting of trips since that could cause a response bias in the PCPS estimates.

Activity determination by direct physical examination at the dock is the preferred method. The Vessel Check Form does allow for other sources of activity determination such as 'asked agent' and 'written information'. However, these other sources are self-reported data and are therefore suspect and are discouraged. Telephone calls to booking agents and internet or newspaper fishing reports may be wrong or consistently incorrect due to business marketing practices or omission of unsuccessful trips. Please avoid

the indirect methods of activity determination unless there is no possibility of doing in-person checks.

### Monitoring Cooperation

This data is also used to document the relative ability of Samplers to take trips on vessels. The CDFG wishes to document the level of cooperation with CRFS Samplers. This will help set policy on what enforcement actions the Department shall take to assure cooperation with observers in the future.

The inability to properly represent the average catch of vessels due to refusals from some vessels may produce biases in the catch rates. These biases may result from uneven catch sampling within a CRFS District. Biases may also result if sampled catch is not representative by trip types, such as the proportion of salmon and tuna trips among the sampled vessels.



#### Denied Access to Vessel

Record vessel checks when you attempt to schedule or attempt to sample a vessel, but you are denied access. Denial may be due to the vessel being full or plain refusal to allow observers on the boat. A vessel may say they are full, but could still legally take a sampler.

A record is made for each attempt that results in any type of denial. Denial of access may be determined by a scheduling phone call or by visiting the site. All vessels, not just drawn vessels, are eligible for denied access vessel checks. Let your supervisor know whenever a vessel denies access for whatever reason.

#### Repeat Offenders

If the vessel operator or agent had previously refused all future contacts; i.e. “never again allowed”, then record a vessel check record each time they would be considered for angler sampling of that boat on an assignment. Vessels that deny all future contact need not be contacted directly by you again if your Supervisor says so. Your Supervisor will notify you when you should actually make contact with the vessel again. In the meantime, you may record the vessel as refusing each time it would be considered for angler sampling without actually contacting the vessel.

Remember that a refusing vessel would be sampled in proportion to all the vessels available at the assigned site, so it would not be sampled (or denying) every time their site is drawn if cooperating vessels were also available at the site. However, if all of the vessels at the site are denying, then record a record for each vessel (all vessels at the site), since each of them would be considered for sampling in the process of eliminating uncooperative vessels and trying another boat at the same site.

#### Refusals are Illegal

Refusals are not allowed according to regulation, if you are refused; notify your Supervisor, in addition to recording it on the check form. Also, while

### The Vessel Check Form

working as an observer you are entitled to complete cooperation from the ENTIRE crew on the boat. Please see the section on ‘on-board observer rights’ below.

### Identify New or Changed Vessels

During vessel checks, Samplers should also comment on any new, relocated or changed passenger fishing vessels. Include comments on vessels whose information on the vessel lists are incorrect. The Sampler should collect the **name and phone number of any new vessels**. Collection of such information will improve the accuracy of the survey.

Samplers should also attempt the collection of contact information for ‘bad’ vessels, those vessels we have been unable to contact in the PCPS because of incorrect mailing addresses and phone numbers. This contact information is very important to the survey.

### Vessel Check Form Layout



#### Coding the Check

Individual records are coded for each vessel day and time. If the activity is fishing and the vessel took more than one trip per day, then you may record one record for each trip. For trips where the information is found after the vessel returns, record a time for the trip when the boat would most likely have been out (middle of the trip is suggested). For trips that span midnight, record

the date and time during the day the trip ended.

### Submitting Forms

Validation checks outside of normal sampling assignments are coded in the weekly reports like pressure checks; assignment =‘0’ and time spent as non-assignment (non-assn) time. Vessel Check Forms will be submitted with the Assignment Summary Form and angler forms weekly. PSMFC and your Supervisor do not tolerate late forms. There is no need to send in a blank Vessel Check Form if there were no assignments, or the assignments conducted did not produce any vessel checks for the week.

### Vessel Check Form Item by Item Instructions

Items with \* indicate required key items.

FIELD NAME	INSTRUCTIONS	CODES AND FORMATS
HEADER		
Sampler name	Print your name to the left of your code.	'JESSICA JONES'
Sampler ID	This is your 3 digit sampler ID	100= Jessica Jones
Year	Record Year Year of sample is used to	YYYY 2007

CRFS Sampler Manual

	classify and track the data	
Week	This item is optional Statistical Week is used to classify and track the data when samplers are issued weekly 'drawn vessel' validation lists.	1-53
<b>VESSEL RECORDS</b>		
Vessel Name	Name of vessel as it appears in your list of boats. Name of the boat is used to track this data and check the boat number. Note in the comments if the name has changed or differs from the name on the vessel list.	'FISH SNIFFER'
Q. What if it is a new boat that is docked and has no name on it? A. Write the proposed name or the permit or CF number.		
*Vessel ID	The unique survey specific vessel id, This list will be given to you by your supervisor. CRFS issued number of the boat (not the permit number – some boats don't have CPFV permits) is used to link this data to the vessel phone survey.	999= 'Fish Sniffer'
Q. What if the boat is unlisted, what do I put for the vessel ID? A. Leave it blank and note any permit or CF number in the comments		
County	This is the numeric county code of the sample site	111= Ventura County
Site	This is the site code for the sample location as listed in your site list.	100= 'Big Harbor'
*Month / Day	The month and date of the sample	MMDD 1231= New Year's Eve
Q. What if the trip is overnight, which date do I put? A. Put the date the trip ended.		
*Time	The time of the sample. Enter the time in military format when you sampled the boat. Time is used to evaluate if the boat activity falls between the departure and return times reported in the vessel phone survey.	2400= midnight 0001= one minute after midnight
Q. What if the boat is just arriving or departing is it docked or not? A. If the boat is just arriving or departing from a trip, put a time which is a few minutes before or after that time that correctly matches the boat's docked status. This way vessel activity can be correctly recorded.		
*Docked	Was the vessel in its slip? Record the docked status at the time and date recorded.	0= No 1= Yes 8= Don't know
Source	This is how the docked status was determined. Seeing the	1= Boat seen 2= Asked agent

The Vessel Check Form

	boat or empty slip with your own eyes is the best type of validation, since we are comparing these checks with what the boat self-reported on the phone survey	3= Written information 4=Other (explain)
Q. What if I see the boat out on the water while on-board another boat? A. Code a vessel check with the boat seen as not docked.		
*Activity	Vessel was out doing what? If the vessel is out, check with a good source to determine what the boat is doing. It is best if this is done with a different source than is used in the vessel phone survey.	1= Passenger fishing 2= Other passenger activity 3= Non=passenger trip 4= Unknown activity 8= Not applicable (vessel docked)
Q. What if the vessel is out of its slip, but is in another (dry) dock? A. Code the boat as docked (it is not on a trip).		
Sample	Asking if you sampled the anglers? If this vessel check was for a boat you interviewed or attempted to interview anglers for catch dockside or on-board, then code the result, otherwise code 2=not sampling PC anglers.	1= Sampled PC anglers 2= Not sampling PC anglers 8= Unable to sample (boat full) 9= Refused sampler (comment on name and title of person refusing)
Q. What if the boat I scheduled is full and I go on another boat, do I code sampling for both boats? A. You were unable to sample the first boat so the code for that is 8= unable to sample. The second boat gets 1= Sampled PC anglers.		
Comments	What the boat was doing, where it was, reason for refusal. Also record contact information for a new boat. Record whether boat trip was Chartered or Open Party	'NEW BOAT CALL CAPT BILLY AT 916-555-1234'

Vessel Check Form Coding Tips

1. For vessels no longer at the expected site, code docked status as "8 = don't know" and make a comment with any new operator names, port of operation and phone numbers.
2. For refusals or inability to sample, record source as "2 = asked agent" and the name of the contact person who informed you of that fact in the comments column.
3. For vessels with continuous refusals, i.e. "never again allowed" and you would have scheduled an intercept, code the source as "4 = other" and write, "Again, documented" in the comment section with the reason.
4. You may still physically check vessels you can't sample by observing from a distance.

## Coding for the 'SAMPLE' column

Here is a key to coding of the 'sample' column:

**1. Do you have an assignment to sample a PC boat today and you're considering taking this boat?**

YES (Go to #2)

NO (SAMPLE = 2, not sampling) (stop)

**2. Did you sample (interview anglers) on this boat?**

YES (SAMPLE = 1, sampled) (stop)

NO (Go to #3)

**3. Why did you not sample this boat?**

UNABLE to sample (SAMPLE = 8) Boat full, not going fishing or missed the boat

REFUSED Sampler (SAMPLE = 9) Refused (available) Write "<Full Name> refused, saying..."

REFUSED (didn't ask, SAMPLE = 9) Write "(Again, documented) reason...."

**Specific Editing Checks**

1. None of the boxes are blank for a vessel.
2. Vessel ID numbers are not the same as the permit or CF number.
3. Leading zeros are not used anywhere.
4. Code "sample" as "1" for boats with interviewed anglers.
5. Provide a contact name and phone number if vessel ID is left blank.
6. If "sample" is coded as "9" (refused), provide name of person who refused you.
7. Comment when the boat has moved to a new site.
8. Record total passengers if the boat is refusing as 'full'.

## The Vessel Check Form

## Example Forms

CRFS CPFV Vessel Check Form

Used to record vessel status. Data used to estimate potential bias.

FYI: LEADING ZEROES CAN BE LEFT BLANK FOR VESSEL ID, COUNTY AND SITE.

AN ANSWER OF "8" FOR "SAMPLE" IMPLIES THE SAMPLER HAD INTENDED TO RIDE OR SAMPLE THE BOAT, BUT WAS UNABLE TO FOR A REASON OTHER THAN REFUSED.

IF NO NUMBER, TALK TO THE CAPTAIN, OR BOOKING OFFICE. GET A CONTACT NAME AND PHONE NUMBER AND WRITE IT IN THE COMMENTS.

AN ANSWER OF "9" FOR "SAMPLE" IMPLIES THE SAMPLER WAS EITHER REFUSED ACCESS TO RIDE OR DENIED THE OPPORTUNITY TO SAMPLE A BOAT.

Sample	Activity	Source	Docked	Month	Day	Time	Site	Only	Vessel ID	Year	Week	Sample Name
8	4	8	2	1912	1405		2	27	1	2007		Jose Samplinski
2	3	2	2	1013	1230		18	59	6			
8	1	2	2	1013	1350		27	37	12			
9	1	2	2	1014	0730		45	73	24			
2	1	2	2	1015	600		18	59	7			
8	2	2	2	1015	630		18	59	86			
1	1	2	2	1015	1512		18	59				
9	1	2	2	1015	1512		18	59	86			
1	8	1	1	1017	0645		45	73	123			
2	1	2	2	1017	650		45	73	24			
2	1	2	2	1017	650		49	83	54			
4	4	8	4	1017	750		50	111	153			

Vessel name: Keel Hauler, You Betcha, Holy Cow, Yo Mama, Body Buster, Nemo's Revenge, So What, Nemo's Revenge, Make My Day, Yo Mama, I'll Be back, You Never Know

Comments: Vessel no longer running at this location. Bessie Smith said 'Check for vessel in San Francisco Bay.' Refueling. Vessel full with 17 anglers and 3 crew. Captain Oliver refused to let me on the boat. 'You guys are putting me out of business.' Rescheduled for the 17th. Saw boat heading out while crossing bridge. Vessel full (20 anglers). Captain is Frank Segal. Booking phone is (392) 317-3928. Saw boat while out on 'So What' with only 10 anglers fishing. They lied about being full. Reported to Supervisor. Laura Croft in the office refused to let me sample any boats at this landing saying: 'You not welcome here anymore.'

Comments: Again, documented - alternate site to dove, no others available. Docked - Vessel in slip? (1=Yes, 2=No, 3=Don't Know) Activity (if not docked) - 1= Passenger Fishing 2= Other Passenger Activity 3= Non Passenger Trip 4= Unknown Activity 5= Vessel docked (no) Sample - 1= Sampled Anglers 2= Not sampling 8= Unable to sample 9= Refused sampler \* = Key Questions.

Vessel ID - Last 3 digits of Unique Number (600001-600099) Month / Day - Date of check Time - Time of check (2400) Source - How was 'docked' determined? (1= Boat seen, 2= Asked agent, 3= When information, 4= Other, explain) Activity (if not docked) - 1= Passenger Fishing 2= Other Passenger Activity 3= Non Passenger Trip 4= Unknown Activity 5= Vessel docked (no) Sample - 1= Sampled Anglers 2= Not sampling 8= Unable to sample 9= Refused sampler \* = Key Questions.

Vessel Checks - A comparison of vessel activity to responses from the charter telephone survey and an analysis of the selection of vessels for the sampling of catch is used to estimate potential bias. During weekly (Monday-Sunday) sampling and effort checks, CPFV vessel activity should be recorded when observed. Interviewers are required to have lists of vessels with locations, names and permit numbers for identification. Vessels that have been selected for the phone survey have a high priority for activity checks. All vessels with attempted or completed angler sampling are also recorded. Get complete details for sampler refusals. Get contact information and permit (DFG) number for unlisted boats.

## QUESTIONNAIRES

The question wording has been structured to capture the required information for this survey in an efficient and thorough manner.

### Angler Form Questionnaire

2007 Angler Questionnaire – California CRFS v20071013

Note: \* indicates key item for good interview.

INTRODUCTION: **Hello, my name is \_\_\_\_\_ and I represent (PSMFC / CDFG). We are interviewing marine recreational anglers for a study sponsored by the National Marine Fisheries Service.**

PRIVACY ACT STATEMENT: This study is being conducted in accordance with the Privacy Act of 1974. You are not required to answer any question that you consider to be an invasion of your privacy.

SCREENING: **Have you completed a saltwater sport fin-fishing trip today?** (If shore fishing then determine if 50% or more complete)

Yes: \_\_\_\_\_ go to next

No: \_\_\_\_\_ ineligible

Refused: \_\_\_\_\_ code an initial refusal under Q10 STATUS.

SPECIAL FISHERY CODE: Specialized fisheries procedures.

Bonus: \_\_\_\_\_ B (MM or PR2 not in cluster site mode).

Crew: \_\_\_\_\_ C (Crew member who sport fished)

Tournament: \_\_\_\_\_ T (Anglers is in a fishing competition. Not PC mode)

### X-EFFORT SECTION

\*A. MM ANGLERS SKIPPED: MM mode anglers not interviewed in MM target mode since last interview or arrival on site. Include anglers you skipped due to high effort and missed eligible anglers while not on site. If none were missed, code 0 (zero). ***If not MM mode leave blank***

\*B. MM ANGLERS WHO STARTED FISHING: MM Anglers who began to fish in MM target mode since last interview or arrival on site. If no anglers started fishing, then code 0 (zero). ***.If not MM mode leave blank***

\*C. PR BOATS LAUNCHED: PR boats launched since last boat or arrival on site. If no boats launched, code zero. ***. If not PR2 mode leave blank.***

\*D. PR NON-FISHING: non-fishing PR boats returned since last boat or arrival on site. If no non-fishing boats returned, code zero. ***If not PR2 mode leave blank.***

## Questionnaires

\*E. PR MISSED: un-sampled PR boats returned since last boat or arrival on site. If no returns missed, code zero. ***If not PR2 mode leave blank***

INTERCEPT SECTION - Note: \* indicates key item for good interview.

\*1. ASSIGNMENT #: Code 1 unless second assignment of the day.

\*2. SAMPLER ID: Code your three digit Sampler code.

\*3. MONTH DAY: Code today's date.

\*4. INTERVIEW NUMBER: Code the sequence of interviews. ***1-999 right justified***

\*5. TIME: Code the time interview started. If aboard a CPFV, code time interview completed.

\*6. STATE: Code 6, unless in OR then code 41.

\*7. COUNTY-SITE: Code the numeric county and site codes for location.

8. SITE NAME: Write the name of the site matching the site code.

\*9. MODE: **Would you say you were fishing from...?**

Pier, dock: \_\_\_\_\_ 1

Jetty, breakwater: \_\_\_\_\_ 2

Bridge, causeway: \_\_\_\_\_ 3

Other man-made: \_\_\_\_\_ 4

Beach or bank: \_\_\_\_\_ 5

Partyboat: \_\_\_\_\_ 6

Charter boat: \_\_\_\_\_ 7

Private or rental boat: \_\_\_\_\_ 8

\*10. STATUS:

Questionnaire complete:— 1

Refused non-key items:— 2

REFUSALS: Record the number of initial refusals since last interview.

LANGUAGE: Record the number of anglers skipped due to language.

KEY REFUALS: Number of anglers skipped due to key items refused.

### EFFORT SECTION

\*E1. EFFORT AREA: **Was most of your fishing time today in the ocean, river or bay?**

Open water (open bay):— O

Mexico: \_\_\_\_\_ M

If river or bay, ask: **What (river/bay) was that?** Probe to determine correct area. Be aware of freshwater cutoffs.

San Francisco Bay: \_\_\_\_\_ S

Other Bay / Harbor: \_\_\_\_\_ B  
 River: \_\_\_\_\_ R

**E2. GEAR: Have you been fishing here today, primarily with a hook and line?**

Yes: \_\_\_\_\_ 1

If no, ask; **what type of gear have you been using?**

Dip net, A-frame net: \_\_\_\_\_ 2

Cast net: \_\_\_\_\_ 3

Gill net: \_\_\_\_\_ 4

Seine: \_\_\_\_\_ 5

Trawl: \_\_\_\_\_ 6

Trap: \_\_\_\_\_ 7

Spear / spear gun: \_\_\_\_\_ 8

Hand: \_\_\_\_\_ 9

**\*E3. WET GEAR HOURS: How many hours have you spent < mode> fishing with your gear IN THE WATER today?**

Hours: \_\_\_\_\_ NN.N, Tenth hours.

**\*E4. SHORE ADDITIONAL HOURS: How many more hours do you expect to fish with your gear in the water today?**

Boat mode: \_\_\_\_\_ *leave blank*

Complete SHORE trip: \_\_\_\_\_ 0

Hours: \_\_\_\_\_ NN.N, Tenth hours.

NOTE: If remaining hours is more than the fished hours, the angler is not yet eligible, terminate interview.)

**FISH SECTION**

**F1. TARGETS: Were you fishing for any particular kinds of fish today?**

No: \_\_\_\_\_ 0=anything

Yes: \_\_\_\_\_ **What kind was primary, secondary?**

Code 5 letter code or 3 digit code. Exception: Last digit may be coded

1=bottomfish

2=sharks

3=surface fish

4=tunas (not mackerel).

**\*F2. UNAVAILABLE CATCH (type 2):**

**Did you catch any fish while you were <specify mode> fishing that are not here for me to look at?**

Refused: \_\_\_\_\_ Terminate and code STATUS=Key refused.

No: \_\_\_\_\_ 0 **any thrown back or used for bait?**

Yes: \_\_\_\_\_ 1 Complete Type 2 records by asking;

**SPECIES: What type of fish did you catch?**

**NUMBER: How many did you land?**

**Questionnaires**

**DISPOSITION: What did you do with them?**

**\*F3. AVAILABLE CATCH: (Type 3):**

**Did you catch any fish while you were <specify mode and area> fishing today that I might be able to look at?**

Refused: \_\_\_\_\_ Terminate and code STATUS=Key refused.

No: \_\_\_\_\_ 0

Yes: \_\_\_\_\_ 1 Complete Type 3 by asking;

**DISPOSITION: What do you plan to do with the majority of these fish?**

**\*F4. ON THIS FORM: How many anglers including you have their catch here?**

Please don't include anyone who did not catch anything (they get their own form). Only count those people who have their catch here. *On other form leave blank*

Refused: \_\_\_\_\_ Terminate and code STATUS=Key refused.

NN: \_\_\_\_\_ Number of contributors to type 3 catch.

**\*F5. ON OTHER FORM: Record the interview number of angler with this angler's available (group) catch. *On this form leave blank***

**BOATS SECTION**

**\*B1. FIRST BOAT INTERVIEW #: Record the interview number of the first angler from the boat.**

First angler: \_\_\_\_\_ Re-record interview number (Q4)

Next angler: \_\_\_\_\_ Record interview number of the FIRST boat angler and skip B2-B12.

Shore: \_\_\_\_\_ *Leave blank* (skip B2-B12)

Note: The remaining B questions are for the first boat angler.

**\*B2. ANGLERS IN BOAT: How many people fished on your boat today?** Code number of anglers who fished (For PC mode this question is asked of the captain or crew).

**\*B3. PR TRAILER IN COUNT AREA: (PR only; *Non PR leave blank*). Is your boat trailer in the main parking lot?** (This question refers to the area(s) covered by the trailer count.).

No: \_\_\_\_\_ 0 (Trailer was not in the count or no trailer)

Yes: \_\_\_\_\_ 1

**\*B4. DEPARTURE TIME: When did you launch your boat?**

Time launched today: \_\_\_\_\_ 0000 to 2359 (skip B4)

Not today: \_\_\_\_\_ Go to B4

Don't know: \_\_\_\_\_ 9998 (status=5)

Refused: \_\_\_\_\_ 9999 (status=5)

**\*B5. DEPARTURE DATE: What day was that?**Today: \_\_\_\_\_ *Leave blank*

Month and day: \_\_\_\_\_ 0101 to 1231 (MMDD format)

Don't know: \_\_\_\_\_ 9998 (status=5)

Refused: \_\_\_\_\_ 9999 (status=5)

**\*B6. DISTANCE FROM SHORE: Was most of your fishing three miles or less from land or more than three miles?**

Three miles or less: \_\_\_\_\_ 1

More than three miles: \_\_\_\_\_ 2 (skip B7)

Inland: \_\_\_\_\_ *Leave blank* (skip B7)**B7: CALIFORNIA ISLAND: Were you fishing within 3 miles of an island?** If within 3 miles of an island, record the island.No: \_\_\_\_\_ *Leave blank*

Yes: \_\_\_\_\_ Code island number 1 to 10

**\*B8: CPFV BOAT PERMIT NUMBER:** For the first PC angler, record the CDFG number of a passenger or paid guide boat. *PR mode leave blank.***\*B9: CPFV BOAT NAME:** the first PC angler, record the name of the boat. *PR mode leave blank.*

## LOCATION SECTION

**L1: ASKED FISHING LOCATION:** Criteria for not obtaining location: The Sampler may choose not to ask this series of questions during a "pulse" in anglers in order to complete the assignment with "enough" interviews.

Yes: \_\_\_\_\_ 1

No: \_\_\_\_\_ 0 (skip L2-L7)

Same as leader: \_\_\_\_\_ 3 (skip L2-L7)

Shore mode: \_\_\_\_\_ *Leave blank*

**L2. LOCATION: What was the location of the majority of your <catch or fishing>? <PRIORITY>** the location for the <1> type 3 fish, <2> type 2 fish, or <3> majority of fishing time.

Location provided: \_\_\_\_\_ Code boxes

Unknown: \_\_\_\_\_ *Leave Blank* L3 = '8', (skip TO L5, *Ask depth*)Refused: \_\_\_\_\_ *Leave Blank* L3 = '9', (skip TO L5, *Ask depth*)

**L3. LOCATION FORMAT:** GIS Format used at L2 or the location is:

D=degrees, M=minutes, S=seconds, G=grid size, B=block, b=box, N=site #

Degrees, min - &lt;grid&gt;: \_\_\_\_\_ 1 (DDMM-DDMMGG DDMMMM-DDMMMM)

Site code: \_\_\_\_\_ 2 (NNNN)

Degrees, min, sec: \_\_\_\_\_ 3 (DDMMSS-DDMMSS)

Decimal degrees: \_\_\_\_\_ 4 (DD.DDDD-DD.DDDD)

Block - box + grid: \_\_\_\_\_ BBB-bb &lt;+g&gt;

Unknown: \_\_\_\_\_ 8 (skip to L5, *Ask depth*)Refused: \_\_\_\_\_ 9 (skip to L5, *Ask depth*)

**L4. ANGLER GAVE LOCATION USING:** How was location determined?

CHECK BOXES (check all that apply) Yes: Check box, No: Box blank. The angler...

1. Pointed at a chart,

2. Read a GPS/Loran,

3. Gave a location name and found on chart (record site name in space provided).

**L5. BOTTOM DEPTH: What was the bottom depth in feet at that location?**

Depth in feet: \_\_\_\_\_ FFFF

Don't Know or Refused: \_\_\_\_\_ *Leave Blank* (skip to L7)**L6. DEPTHEFINDER USED: Did you use a depth finder at that location?**

Yes: \_\_\_\_\_ 1

No: \_\_\_\_\_ 0

No depth: \_\_\_\_\_ *Leave Blank***L7. ALL CATCH FROM THIS LOCATION: Were all of your fish caught at that location / depth?**

Yes: \_\_\_\_\_ 1

Don't Know: \_\_\_\_\_ 8

Refused: \_\_\_\_\_ 9

(IF 1, 8 or 9 leave all the fish record location check boxes blank)

**No: \_\_\_\_\_ 0 - Can you tell me which fish were caught at that location?**

**FISH RECORDS:** Check location boxes for species where majority of fish were caught at that location. (TYPE 3: If more fish than records, leave type 3 location boxes blank)

## ANGLER SECTION

**\*A1. RESIDENCE: What is your county of residence?** Out of state, code postal code of state. Foreign country, code country code. If county unknown, ask **"What city or town do you live in?"**

California County: \_\_\_\_\_ (three letter code)

US State: \_\_\_\_\_ (two letter code)

Foreign Country: \_\_\_\_\_ F\_ \_ (three letter code)

Refused to say: \_\_\_\_\_ 999

Don't know: \_\_\_\_\_ 998

**A2. ZIP CODE: What is the ZIP Code of your residence?** (If zip unknown, ask **"What city or town do you live in?"**)

Zip code: \_\_\_\_\_ (5 digits)

Don't know: \_\_\_\_\_ 8

Refused to say: \_\_\_\_\_ 9

\*A3. **What type of California fishing license are you using today, annual or daily?** (Under age anglers may have a license)

No License: \_\_\_\_\_ 0

Annual: \_\_\_\_\_ 1

Daily: \_\_\_\_\_ 2 (ask A4. How many days?)

Don't know: \_\_\_\_\_ 8

Refused to say: \_\_\_\_\_ 9

A4. DAILY LICENSE NUMBER OF DAYS: **How many days does your license allow?**

Not applicable: \_\_\_\_\_ *Leave Blank*

A6. DAYS SALTWATER SPORTFISHED: LAST 12 MO: **Not counting today, within the past 12 months, how many days have you gone 'salt water sport fin-fishing' in this state, or from a boat launched in this state?**

Don't know: \_\_\_\_\_ 998

Refused to say: \_\_\_\_\_ 999

A7. DAYS SALTWATER SPORTFISHED: LAST 2 MO: **Not counting today, how many days within the past two months?** (Cannot be more than in last 12 months)

Don't know: \_\_\_\_\_ 98

Refused to say: \_\_\_\_\_ 99

A8. FULL NAME: **In the event that my Supervisor wishes to verify that I have been conducting interviews here today, may I have your name and "a" contact phone number?**

Print FULL name clearly on line.

A9. GENDER (angler)

Male: \_\_\_\_\_ 1

Female: \_\_\_\_\_ 2

A10. A PHONE #: Print telephone number in boxes. Record any information about calling time, language, etc. in space above boxes.

No phone: \_\_\_\_\_ 0

Under age 16: \_\_\_\_\_ 7

Name and phone given:— Enter Tel #

## PR1 Form Questionnaire

2007 CRFS PR1 Questionnaire - v20061013

INTRODUCTION: **Hello, my name is \_\_\_\_\_ and I represent (PSMFC / CDFG). We are interviewing marine recreational anglers for a study sponsored by the National Marine Fisheries Service.**

PRIVACY ACT STATEMENT: This study is being conducted in accordance with the Privacy Act of 1974. You are not required to answer any question that you consider to be an invasion of your privacy.

HEADER ROW:

PAGE\_\_\_\_\_ OF \_\_\_\_\_. The page number in sequence for this side of this sheet and the total number of pages with boats.

ASSID: Unique 6 digit code for this assignment (MMDNNN)

DATE: The date of record for the assignment in YYYYMMDD format.

CNTY: The numeric code for the geographic county the site is in.

SITE: The numeric code for the site in the county and district.

OSP: The three letter port code for the Ocean Salmon Project

SAMPLER: The Sampler printed first and last name

SAMP#: The Sampler's numeric code for the database

ARRIVAL ON-SITE: Number of active trailers in the trailer count area upon arrival.

ARRIVAL OFF-SITE: Number of active trailers in another area before arrival.

DEPARTURE ON-SITE: Number of active trailers in the trailer count area upon departure.

DEPARTURE OFF-SITE: Number of active trailers in another area after departure.

BOAT ROW, EFFORT COLUMNS:

CRFS #: In sequence, the boat number for when minimum data elements are collected: # anglers, # days fished, target species, gear, catch # by species

## CRFS Sampler Manual

Catch data includes 0 catch. Do not apply CRFS number IF: 1) the vessel is a non-fishing vessel or 2) the vessel was missed, i.e. not sampled

**BOAT TIME:** Enter the time in military format (HHMM) when you started the vessel interview. Only enter one time per CRFS or NF boat.

**SCREENING: Did anyone on the boat do any sport fishing?**

YES:\_\_\_\_\_ go to next

NO:\_\_\_\_\_ NF (non-fishing) type, and conclude the interview.

Refused:\_\_\_\_\_ This is a missed boat, terminate interview

NOTE: If the boat is going back out for more fishing skip till next return.

YES:\_\_\_\_\_ go to next

NO:\_\_\_\_\_ NF (non-fishing) type, and conclude the interview.

Refused:\_\_\_\_\_ This is a missed boat, terminate interview

**ANGLERS: How many of you had gear in the water?** (on vessel) Enter the total number of anglers on the vessel that fished (gear in the water)

Refused:\_\_\_\_\_ This is a missed boat, terminate interview

**WITHOUT LICENSE: What type of license does each of you have?**

Enter the number of the ANGLERS (above) who fished on the boat without a current California fishing license.

Refused:\_\_\_\_\_ This is a missed boat, terminate interview

**RESIDENCE COUNTY: What is your county of residence?** Ask a random angler. If CA resident and county unknown, enter 2 letter state code and city of residence. Out of state put the state postal code. Foreign put country code.

If California:\_\_\_\_\_ 3 letter alpha code

If unknown:\_\_\_\_\_ 2 letter state postal code

Out of state:\_\_\_\_\_ 2 letter state postal code

Out of country:\_\_\_\_\_ 3 letter country code

If refused:\_\_\_\_\_ blank

**DAYS FISHED: What time did you leave the ramp?** Record number of DAYS vessel fished without returning to port (often 1 day).

Refused:\_\_\_\_\_ This is a missed boat, terminate interview

**PRIMARY TARGET: What were you primarily after? (NF doing)?** List the taxon or Non-Fishing [NF] with activity.

Anything:\_\_\_\_\_ UNIFH (if caught fin-fish while shellfishing)

Refused:\_\_\_\_\_ This is a missed boat, terminate interview

Not fishing:\_\_\_\_\_ NF code

**SECONDARY TARGET: What were you secondarily after?** List the taxon or Non-Fishing [NF] with activity.

Anything:\_\_\_\_\_ UNIFH

Non fishing:\_\_\_\_\_ NF code (includes shellfishing)

None:\_\_\_\_\_ blank

## Questionnaires

**SALMON (checkbox): Did you try to catch salmon today?**

YES:\_\_\_\_\_ X box if targeted salmon at any time.

NO:\_\_\_\_\_ blank if salmon were caught by accident (by-catch).

Refused:\_\_\_\_\_ box blank

**MEXICO (checkbox): Did you fish in Mexico?**

YES:\_\_\_\_\_ **Was most of your fishing time in Mexico?**

YES:\_\_\_\_\_ X box

NO:\_\_\_\_\_ box blank (mostly fished in US waters)

NO:\_\_\_\_\_ box blank

Refused:\_\_\_\_\_ This is a missed boat, terminate interview

**PRIMARY GEAR: What gear did you use for <primary target>?**

Hook & Line:\_\_\_\_\_ H

Troll:\_\_\_\_\_ T

Spear:\_\_\_\_\_ S (includes any diving gear like 'hand')

Pot:\_\_\_\_\_ P

Mooch:\_\_\_\_\_ M (salmon only)

Both M & T:\_\_\_\_\_ B (salmon only)

Refused:\_\_\_\_\_ blank

**SECONDARY GEAR: What gear did you use for <secondary target>?**

Hook & Line:\_\_\_\_\_ H

Troll:\_\_\_\_\_ T

Spear:\_\_\_\_\_ S (includes any diving gear like 'hand')

Pot:\_\_\_\_\_ P

Mooch:\_\_\_\_\_ M (salmon only)

Both M & T:\_\_\_\_\_ B (salmon only)

Refused:\_\_\_\_\_ blank

**BOAT ROW, CATCH COLUMNS:**

**CATCH LOCATION: Where did the boat catch most of the fish?**

**NO CATCH: Where did the boat spend most of its time fishing today?**

The priority rank of the location is for 1) landed fish, 2) reported fish, or 3) majority of fishing time. If the anglers report locations by species and time allows, record the location for each species.

Don't know:\_\_\_\_\_ blank

Refused:\_\_\_\_\_ blank

Block-Box:\_\_\_\_\_ BBB-bb-bb-bb (up to three boxes for one block)

Lat & Lon:\_\_\_\_\_ Enter the latitude above the longitude

1) Degrees, minutes and grid (DD.MM / DD.MM-GG)

2) Degrees, minutes & seconds (DD.MM.SS / DD.MM.SS)

Where D=degrees, M=minutes, S=seconds, G= area in minutes

NOTE: If the location is above a freshwater cutoff, the boat is not eligible and should be coded as NFREF.

**BOTTOM DEPTH: What was the bottom depth at that location?**

Record mean depth or depth range (minimum and maximum)

Depth in feet:\_\_\_\_\_ FFF  
Don't know:\_\_\_\_\_ blank  
Refused:\_\_\_\_\_ blank

**CATCH SPECIES: Did the boat catch any fish today?**

Yes:\_\_\_\_\_ go to next  
No:\_\_\_\_\_ leave blank, enter zeros for numbers of fish  
Refused:\_\_\_\_\_ This is a missed boat, terminate interview

**OBSERVED LANDING: May I see the catch?**

Yes:\_\_\_\_\_ Sampler will identify and count all fish.  
No:\_\_\_\_\_ enter zero (code as UNAVAILABLE)  
Fillets:\_\_\_\_\_ enter zero (code as UNAVAILABLE)

**SEAL TAKE: Did you see any seals or sea lions take your fish?**

Yes:\_\_\_\_\_ record species and number of fish  
No:\_\_\_\_\_ enter zero  
Refused:\_\_\_\_\_ blank  
Don't know:\_\_\_\_\_ blank

**UNAVAILABLE: Did the boat catch any other fish?**

Yes:\_\_\_\_\_ record species and number of fish ALIVE or DEAD  
No:\_\_\_\_\_ enter zeros for ALIVE and DEAD  
Refused:\_\_\_\_\_ This is a missed boat, terminate interview  
Don't know:\_\_\_\_\_ blank

**ALIVE: What fish were released alive?**

Amount:\_\_\_\_\_ record species and number of fish released ALIVE  
None:\_\_\_\_\_ enter zero  
Refused:\_\_\_\_\_ This is a missed boat, terminate interview  
Don't know:\_\_\_\_\_ This is a missed boat, terminate interview

**DEAD: What fish were killed?**

Amount:\_\_\_\_\_ record species and number of fish DEAD  
None:\_\_\_\_\_ enter zero  
Refused:\_\_\_\_\_ This is a missed boat, terminate interview  
Don't know:\_\_\_\_\_ This is a missed boat, terminate interview

**BOAT ROW, CATCH COLUMNS LEN&WGT**

**LENGTH:** Enter the fork length in mm of each measured fish above dotted line. Add a suffix of F or M for sexed fish.

**WEIGHT:** Enter the weight in kg of the fish below the length. Do not record a weight without a length.

**HEAD TAG #:** Enter the head tag number for an adipose fin clipped salmon with or without head below its length in place of the WEIGHT. If the head is lost or refused, write the suffix N after the tag number.

**MISSED BOATS:** Enter the number of boats that returned to this ramp that you did not sample or refused since the last sampled boat. If none were missed enter 0.

**OFF-SITE MISSED BOATS:** Enter the number of boats that returned to another site since the last sampled boat. If none were missed enter 0.

**FOOTER SECTION**

**CRFS PAGE TOTAL:** Enter the count of CRFS boats numbered on the page. Species that continue onto the next page are counted on the starting page. Page totals are never blank.

**BOATS PAGE TOTAL:** Enter the count of all boat TIMES on the page. This should be the number of records with time recorded.

**ANGLERS PAGE TOTAL:** Enter the SUM of the ANGLERS FISHED for the page.

**MISSED PAGE TOTAL:** Enter the SUM of the MISSED BOATS for the page.

**OFF SITE PAGE TOTAL:** Enter the SUM of the OFF-SITE MISSED BOATS for the page.

**SALMON ASSIGNMENT DATA**

**SALMON BOATS:** Enter the number of boats on the page that has the salmon checkbox marked with an X.

**SALMON ANGLERS:** Enter the SUM of the ANGLERS on the page where the salmon checkbox marked with an X.

**KINGS KEPT:** Enter the SUM of the OBSERVED LANDING on the page where SALCK is the catch species.

**COHOS KEPT** Enter the SUM of the OBSERVED LANDING on the page where SALCO is the catch species.

**KINGS RELEASED** Enter the SUM of the UNAVAILABLE ALIVE +DEAD on the page where SALCK is the catch species.

**COHOS RELEASED** Enter the SUM of the UNAVAILABLE ALIVE +DEAD on the page where SALCO is the catch species.

## SPECIES CODES

*Sorted by Species Code*

SP CODE COMMON NAME

ANCDB anchovy, deepbody  
 ANCFM anchovy family  
 ANCGN anchovy genus  
 ANCNO anchovy, northern  
 ARGNT argentine, Pacific  
 BARPA barracuda, Pacific  
 BLKSJ skipjack, black  
 BLKSM blacksmith  
 BLNBY blenny, bay  
 BLNRP blenny, rockpool  
 BOGBY goby, bay  
 BOGYL goby, yellowfin  
 BONEF bonefish  
 BONPA bonito, Pacific  
 BOTOM bottomfish (groundfish)  
 BOXSP boxfish, spiny  
 BUTFM butterflyfish family  
 BUTFM butterflyfish family  
 CARPC carp, common  
 CASTG smoothtongue, California  
 CATCN catfish, channel  
 CBFLS combfish, longspine  
 CBFSS combfish, shortspine  
 CLNGN clingfish, northern  
 CODFM cod family  
 CODPA cod, Pacific  
 CODTC tomcod, Pacific  
 COROM corvina, orangemouth  
 CORSF corvina, shortfin  
 CRBCA corbina, California  
 CRBDG crab, dungeness  
 CRBGN crab genus, cancer  
 CRBGR crab, graceful rock  
 CRBRR crab, red rock  
 CRKBK croaker, black  
 CRKSF croaker, spotfin  
 CRKYF croaker, yellowfin  
 CROWT croaker, white  
 CSHFM shark family, cow  
 CSKFM eel family, cusk  
 CTFPE catalufa, popeye  
 CTSFM shark family, cat  
 CUTLP cutlassfish, Pacific  
 DABGN sanddab genus

SCIENTIFIC NAME

Anchoa compressa  
 Engraulidae  
 Anchoa spp.  
 Engraulis mordax  
 Argentina sialis  
 Sphyræna argentea  
 Euthynnus lineatus  
 Chromis punctipinnis  
 Hypsoblenius gentilis  
 Hypsoblenius gilberti  
 Lepidogobius lepidus  
 Acanthogobius flavimanus  
 Albula vulpes  
 Sarda chilensis  
  
 Ostracion diaphanum  
 Chaetodontidae  
 Stromateidae  
 Cyprinus carpio  
 Leuroglossus stilbius  
 Ictalurus punctatus  
 Zaniolepis latipinnis  
 Zaniolepis frenata  
 Gobiesox maeandricus  
 Gadidae  
 Gadus macrocephalus  
 Microgadus proximus  
 Cynoscion xanthulus  
 Cynoscion parvipinnis  
 Menticirrhus undulatus  
 Cancer magister  
 Cancer  
 Cancer gracilis  
 Cancer productus  
 Cheilodroma saturnum  
 Roncador stearnsi  
 Umbrina roncadore  
 Genyonemus lineatus  
 Hexanchidae  
 Ophidiidae  
 Pristigenys serrula  
 Scyllorhinidae  
 Trichiurus nitens  
 Citharichthys

*Sorted by Species Code*

DABLF sanddab, longfin  
 DABPA sanddab, Pacific  
 DABSP sanddab, speckled  
 DAMFM damselfish family  
 DRADO dolphin  
 DRGFM dragonfish family  
 DRMFM drum family  
 DSSFM smelt family, deepsea  
 EELOR eel order  
 ELPFM eelpout family  
 ERYPA ray, Pacific electric  
 FLLFN flounder family, lefteye  
 FLNFM blenny family, combtooth  
 FLRAR flounder, arrowtooth  
 FLRFM flounder family, righteye  
 FLRKM flounder, Kamchatka  
 FLRST flounder, starry  
 FLTOR flatfish order  
 FLYCA flyingfish, California  
 FLYFM flyingfish family  
 FRSFM shark family, frill  
 FTRIG triggerfish, finescale  
 GARIB garibaldi  
 GNTFM grunt family  
 GNTSB seabass, giant  
 GOBAR goby, arrow  
 GOBBE goby, blackeye  
 GOBFM goby family  
 GRNFM greenling family  
 GRNGN greenling genus  
 GRNKP greenling, kelp  
 GRNMA greenling, masked  
 GRNPT greenling, painted  
 GRNRK greenling, rock  
 GRNWT greenling, whitespotted  
 GRPBT grouper, broomtail  
 GRPGF grouper, gulf  
 GRUCA grunion, California  
 GUIBD guitarfish, banded  
 GUIFM guitarfish family  
 GUINSH guitarfish, shovelnose  
 GUNCR gunnel, crescent  
 GUNFM gunnel family  
 GUNPP gunnel, penpoint  
 GUNSB gunnel, saddleback  
 HAGBK hagfish, black  
 HAGFM hagfish order  
 HAGPA hagfish, Pacific  
 HALCA halibut, California  
 HALFM halibut, Greenland  
 HALGL halibut, Greenland  
 HALPA halibut, Pacific

Citharichthys xanthostigma  
 Citharichthys sordidus  
 Citharichthys stigmatæus  
 Pomacentridae  
 Coryphaena hippurus  
 Stomiidae  
 Sciaenidae  
 Bathylagidae  
 Anguilliformes  
 Zoarcidae  
 Torpedo californica  
 Bothidae  
 Blenniidae  
 Atheresthes stomias  
 Pleuronectidae  
 Atheresthes evermanni  
 Platicthys stellatus  
 Pleuronectiformes  
 Cypselurus californicus  
 Exocoetidae  
 Chlamydoselachidae  
 Balistes polylepis  
 Hypsypops rubicundus  
 Haemulidae  
 Stereolepis gigas  
 Clevelandia ios  
 Coryphopterus nicholsi  
 Gobiidae  
 Hexagrammidae  
 Hexagrammos  
 Hexagrammos decagrammus  
 Hexagrammos octogrammus  
 Oxylebius pictus  
 Hexagrammos lagocephalus  
 Hexagrammos stelleri  
 Mycteroperca xenarcha  
 Mycteroperca jordani  
 Leuresthes tenuis  
 Zapteryx exasperata  
 Rhinobatidae  
 Rhinobatos productus  
 Pholis laeta  
 Pholidae  
 Apodichthys flavidus  
 Pholis ornata  
 Eptatretus deani  
 Myxinidae  
 Eptatretus stouti  
 Paralichthys californicus  
 Medialuna californiensis  
 Reinhardtius hippoglossoides  
 Hippoglossus stenolepis

*CRFS Sampler Manual*

HERFM	herring family	Clupeidae
HERPA	herring, Pacific	Clupea pallasii
HERRD	herring, round	Etrumeus teres
JACFM	jack family	Carangidae
JACMK	mackerel, jack	Trachurus symmetricus
KAWAK	kawakawa	Euthynnus affinis
KLFCA	killifish, California	Fundulus parvipinnis
KLPCR	kelpfish, crevice	Gibbonsia montereyensis
KLPFM	clinid family	Clinidae
KLPGT	kelpfish, giant	Heterostichus rostratus
KLPOF	fringehead, onespot	Neoclinus urinotatus
KLPRB	blenny, reef	Paraclinus integripinnis
KLPSF	fringehead, sarcastic	Neoclinus blanchardi
KLPSP	kelpfish, spotted	Gibbonsia elegans
KLPST	kelpfish, striped	Gibbonsia metzi
KOSAL	king-of-the-salmon	Trachipterus altivelis
LANLN	lancetfish, longnose	Alepisaurus ferox
LJMUD	mudsucker, longjaw	Gillichthus mirabilis
LMPAR	lamprey, Arctic	Lampetra japonica
LMPFM	lamprey family	Petromyzontidae
LMPPA	lamprey, Pacific	Entosphenus tridentatus
LNGCD	lingcod	Ophiodon elongates
LOBSP	lobster, spiny	Panulirus interruptus
LUVAR	louvar	Luvarus imperialis
LZDCA	lizardfish, California	Synodus lunioceps
LZDFM	lizardfish family	Synodontidae
MACBL	mackerel, bullet	Auxis rochei
MACFM	mackerel family	Scombridae
MACFR	mackerel, frigate	Auxis thazard
MACPA	mackerel, chub (Pacific)	Scomber japonicus
MANTA	manta	Manta birostris
MARBK	marlin, black	Makaira indica
MARBL	marlin, blue	Makaira nigricans
MARFM	billfish family	Istiophoridae
MARST	marlin, striped	Tetrapturus audax
MIDGN	midshipman genus	Porichthys
MIDPF	midshipman, plainfin	Porichthys notatus
MIDSP	midshipman, specklefin	Porichthys myriaster
MOJFM	mojarra family	Gerreidae
MORAY	moray, California	Gymnothorax mordax
MSCAD	scad, Mexican	Decapterus scombrinus
NEDCA	needlefish, California	Strongylura exilis
OCWHT	whitefish, ocean	Caulolatilus princeps
OPAHS	opah	Lampris guttatus
OPALE	opaleye	Girella nigricans
PERFM	perch family	Percidae
PERZB	perch, zebra	Hermosilla azurea
PHAKE	hake, Pacific	Merluccius productus
PILTF	pilotfish	Naucrates ductor
PIPEB	pipefish, bay	Syngnathus leptorhynchus
POLWE	pollock, walleye	Theragra chalcogramma
POMDO	dolphin, pompano	Coryphaena equisetis

*Sorted by Species Code*

POMFM	pomfret family	Bramidae
POMPA	pompano, Pacific (butterfish)	Pepilus simillimus
PRKBK	prickleback, black	Xiphister atropurpureus
PRKFM	prickleback family	Stichaeidae
PRKMK	prickleback, monkeyface	Cebidichthys violaceus
PRKRK	prickleback, rock	Xiphister mucosus
PRKSN	prickleback, snake	Lumpenus sagitta
PUFFM	puffer family	Tetraodontidae
QUEEN	queenfish	Seriphus politus
RAGFS	ragfish	Icosteus aenigmaticus
RAJOR	order, skate and ray	Rajiformes
RATFS	ratfish, spotted	Hydrolagus collieri
REMFM	remora family	Echeneidae
REMWS	whalesucker	Remora australis
RFAUR	rockfish, aurora	Sebastes aurora
RFBAY	rockfish, black and yellow	Sebastes chrysomelas
RFBKG	rockfish, blackgill	Sebastes melanostomus
RFBK	rockfish, black	Sebastes melanops
RFBLU	rockfish, blue	Sebastes mystinus
RFBNK	rockfish, bank	Sebastes rufus
RFBOS	rockfish, (bocaccio)	Sebastes paucispinis
RFBRN	rockfish, brown	Sebastes auriculatus
RFBSP	rockfish, bronzespotted	Sebastes gilli
RFCAN	rockfish, canary	Sebastes pinniger
RFCBN	rockfish, China	Sebastes nebulosus
RFCLO	rockfish, calico	Sebastes dalli
RFCMA	rockfish, chameleon	Sebastes phillipsi
RFCOP	rockfish, copper	Sebastes caurinus
RFCOW	rockfish, (cowcod)	Sebastes levis
RFDDB	rockfish, darkblotched	Sebastes crameri
RFDUS	rockfish, dusky	Sebastes ciliatus
RFFLG	rockfish, flag	Sebastes rubrivinctus
RFFRK	rockfish, freckled	Sebastes lentiginosus
RFGBL	rockfish, greenblotched	Sebastes rosenblatti
RFGEN	rockfish genus	Sebastes
RFGOP	rockfish, gopher	Sebastes carnatus
RFGRN	rockfish, greenspotted	Sebastes chlorostictus
RFGRS	rockfish, grass	Sebastes rastrelliger
RFGST	rockfish, greenstriped	Sebastes elongatus
RFHBD	rockfish, halfbanded	Sebastes semicinctus
RFHNC	rockfish, honeycomb	Sebastes umbrosus
RFKLP	rockfish, kelp	Sebastes atrovirens
RFLST	thornyhead, longspine	Sebastolobus altivelis
RFMEX	rockfish, Mexican	Sebastes macdonaldi
RFOLV	rockfish, olive	Sebastes serranoides
RFPEP	rockfish, (chilipepper)	Sebastes goodei
RFPNK	rockfish, pink	Sebastes eos
RFPOP	perch, Pacific ocean	Sebastes alutus
RFPRS	rockfish, pinkrose	Sebastes simulator
RFPSD	rockfish, Puget Sound	Sebastes emphaeus
RFPGY	rockfish, pygmy	Sebastes wilsoni
RFQIL	rockfish, quillback	Sebastes maliger

# *CRFS Sampler Manual*

RFRBD	rockfish, redbanded	Sebastes babcocki
RFRGH	rockfish, roughey	Sebastes aleutianus
RFROS	rockfish, rosy	Sebastes rosaceus
RFRST	rockfish, redstripe	Sebastes proriger
RFRTN	rockfish, rosethorn	Sebastes helvomatulatus
RFSCN	rockfish, sharpchin	Sebastes zacentrus
RFSDS	rockfish, swordspine	Sebastes ensifer
RFSHB	rockfish, shortbelly	Sebastes jordani
RFSLG	rockfish, silvergray	Sebastes brevispinis
RFSNS	rockfish, splitnose	Sebastes diploproa
RFSPK	rockfish, speckled	Sebastes ovalis
RFSQS	rockfish, squarespotted	Sebastes hopkinsi
RFSRK	rockfish, shortraker	Sebastes borealis
RFSST	thornyhead, shortspine	Sebastolobus alascanus
RFSTA	rockfish, starry	Sebastes constellatus
RFSTR	rockfish, stripetail	Sebastes saxicola
RFTIG	rockfish, tiger	Sebastes nigrocinctus
RFTRE	rockfish, (treefish)	Sebastes serriceps
RFVER	rockfish, vermilion	Sebastes miniatus
RFWID	rockfish, widow	Sebastes entomelas
RFWTB	rockfish, whitebelly	Sebastes vexillaris
RFYFY	rockfish, yelloweye	Sebastes ruberrimus
RFYMN	rockfish, yellowmouth	Sebastes reedi
RFYTL	rockfish, yellowtail	Sebastes flavidus
RNQFM	ronquil family	Bathymasteridae
RNQNO	ronquil, northern	Ronquilus jordani
ROCKH	rockhead	Bothrionus swani
RYBAT	ray, bat	Myliobatis californica
RYFLY	butterflyray, California	Gymnura marmorata
SABFM	sablefish family	Anoplopomatidae
SABLE	sablefish	Anoplopoma fimbria
SAILF	sailfish	Istiophorus platypterus
SALAC	trout, Arctic char	Salvelinus alpinus
SALAT	salmon, Atlantic	Salmo salar
SALCK	salmon, chinook	Oncorhynchus tshawytscha
SALCM	salmon, chum	Oncorhynchus keta
SALCO	salmon, coho	Oncorhynchus kisutch
SALCT	trout, cutthroat	Oncorhynchus clarki
SALDV	Varden, Dolly	Salvelinus malma
SALEM	salema	Xenistius californiensis
SALFM	salmon family	Salmonidae
SALGN	salmon genus	Oncorhynchus spp.
SALPK	salmon, pink	Oncorhynchus gorbuscha
SALRB	trout, rainbow	Oncorhynchus mykiss
SALSE	salmon, sockeye	Oncorhynchus nerka
SALTR	trouts, sea run	
SARGO	sargo	Anisotremus davidsoni
SARPA	sardine, Pacific	Sardinops sagax
SAUPA	saury, Pacific	Coloabis saira
SBBAR	sandbass, barred	Paralabrax nebulifer
SBFAM	bass family, sea	Serranidae
SBGEN	sandbass genus	Paralabrax

# *Sorted by Species Code*

SBKLP	bass, kelp	Paralabrax clathratus
SBSPT	sandbass, spotted	Paralabrax maculatofascia
SBTHF	bass, threadfin	Pronotogrammus multifasciatus
SBWHT	seabass, white	Atractoscion nobilis
SCANT	sculpin, antlered	Enophrys dicercaus
SCASH	sculpin, Arctic staghorn	Gymnancanthus tricusps
SCBFM	chub family, sea	Kyphosidae
SCBIL	lord, brown Irish	Hemilepidotus spinosus
SCBKF	sculpin, blackfin	Malacocottus kincaidi
SCBLD	sculpin, bald	Clinocottus recalvus
SCBRZ	scabbardfish, razorback	Assurger anzac
SCBUF	sculpin, buffalo	Enophrys bison
SCBUL	sculpin, bull	Enophrys taurina
SCCAB	cabezon	Scorpaenichthys marmoratus
SCCRG	sculpin, coastrange	Cottus aleuticus
SCDSK	sculpin, dusky	Icelinus burchani
SCFAM	sculpin family	Cottidae
SCGRT	sculpin, great	Myoxocephalus polyacanthoceph
SCGRU	sculpin, grunt	Rhamphocottus richardsoni
SCILG	lord genus, Irish	Hemilepidotus
SCLST	sculpin, leister	Enophrys lucasi
SCNTH	sculpin, northern	Icelinus borealis
SCPAD	sculpin, padded	Artedius fenestralis
SCPRK	sculpin, prickly	Cottus asper
SCPSH	sculpin, Pacific staghorn	Leptocottus armatus
SCRCA	scorpionfish, California	Scorpaena guttata
SCRFM	scorpionfish family	Scorpaenidae
SCRIL	lord, red Irish	Hemilepidotus hemilepidotus
SCRRB	scorpionfish, rainbow	Scorpaenodes xyris
SCRSL	sculpin, rosylip	Ascelichthys rhodorus
SCSCL	sculpin, scaled	Archaulus biserialis
SCSCT	sculpin, scissortail	Triglops forficata
SCSFN	sculpin, sailfin	Nautichthys oculofasciatus
SCSHN	sculpin, sharpnose	Clinocottus acuticeps
SCSLH	sculpin, scalyhead	Artedius harringtoni
SCSPT	sculpin, spotfin	Icelinus tenuis
SCTDP	sculpin, tidepool	Oligocottus maculosus
SCTRF	sculpin, threadfin	Icelinus filamentosus
SCWOL	sculpin, woolly	Clinocottus analis
SELFM	eel family, snake	Ophichthidae
SELYL	eel, yellow snake	Ophichthus zophochir
SENROR	senorita	Oxyjulis californica
SERLT	searobin, limptail	Prionotus stephanophrys
SGDIA	stingray, diamond	Dasyatis dipterura
SGFAM	stingray family	Dasyatidae
SGGEN	stingray genus	Dasyatis spp.
SGPEL	stingray, pelagic	Dasyatis violacea
SGRND	stingray, round	Urolophus halleri
SHADA	shad, American	Alosa sapidissima
SHANG	shark, Pacific angel	Squatina californica
SHBCS	shark, brown cat	Apristurus brunneus
SHBLU	shark, blue	Prionace glauca

*CRFS Sampler Manual*

SHBNH	shark, bonnethead	Sphyrna tiburo
SHBSM	smoothhound, brown	Mustelus henlei
SHBUL	shark, bull	Carcharhinus leucas
SHDFM	shark family, dogfish	Squalidae
SHDKY	shark, dusky	Carcharhinus obscurus
SHEEP	sheephead, California	Semicossyphus pulcher
SHFIN	shark, soupfin	Galeorhinus zyopterus
SHGSM	smoothhound, gray	Mustelus californicus
SHHRN	shark, horn	Heterodontus francisci
SHLEP	shark, leopard	Triakis semifasciata
SHMFM	shark family, mackerel	Lamnidae
SHNTH	shark, narrowtooth	Carcharhinus brachyurus
SHRFM	shark family, requiem	Carcharhinidae
SHSAL	shark, salmon	Lamna ditropis
SHSDG	shark, spiny dogfish	Squalus acanthias
SHSEV	shark, seven gill	Notorynchus maculatus
SHSGN	smoothhound genus	Mustelus
SHSIX	shark, six gill	Hexanchus griseus
SHSLP	shark, Pacific sleeper	Somniosus pacificus
SHSMK	shark, shortfin mako	Isurus oxyrinchus
SHSSM	smoothhound, sicklefin	Mustelus lunulatus
SHSWL	shark, swell	Cephaloscyllium ventriosum
SHTHR	shark, thresher	Alopias vulpinus
SHTIG	shark, tiger	Galeocerdo cuvieri
SHUNI	unidentified (sharks)	
SHWHT	shark, white	Carcharodon carcharias
SKALT	skate, Aleutian	Bathyrja aleutica
SKBFM	stickleback family	Gasterosteidae
SKBGN	skipback genus	Euthynnus
SKBIG	skate, big	Raja binoculata
SKBTS	stickleback, threespine	Gasterosteus aculeatus
SKFAM	skate family	Rajidae
SKLGN	skate, longnose	Raja rhina
SKSTY	skate, starry	Raja stellulata
SKTCA	skate, California	Raja inornata
SMCAP	capelin	Mallotus villosus
SMEUL	eulachon	Thaleichthys pacificus
SMFAM	smelt family	Osmeridae
SMJAK	smelt, (jacksmelt)	Atherinopsis californiensis
SMLGF	smelt, longfin	Spirinchus thlaeichthys
SMNGT	smelt, night	Spirinchus starksi
SMSUR	smelt, surf	Hypomesus pretiosus
SMTOP	smelt, (topsmelt)	Atherinops affinis
SMWTB	smelt, whitebait	Allosmerus elongatus
SNDFM	sandfish family	Trichodontidae
SNDPA	sandfish, Pacific	Trichodon trichodon
SNFFM	sunfish family	Centrarchidae
SOLAF	flounder, Arctic	Pleuronectes glacialis
SOLBF	flounder, Bering	Hippoglossoides robustus
SOLBG	sole, bigmouth	Hippoglossina stomata
SOLBT	sole, butter	Pleuronectes isolepis
SOLCF	sole, curlfin	Pleuronichthys decurrens

*Sorted by Species Code*

SOLCO	sole, C-O	Pleuronichthys coenosus
SOLDS	sole, deepsea	Embassichthys bathybius
SOLDT	turbot, diamond	Hypopsetta guttulata
SOLDV	sole, Dover	Microstomus pacificus
SOLEG	sole, English	Pleuronectes vetulus
SOLFH	sole, flathead	Hippoglossoides elassodon
SOLFT	sole, fantail	Xystreurus liolepis
SOLHT	turbot, hornyhead	Pleuronichthys verticalis
SOLPA	lance, Pacific sand	Ammodytes hexapterus
SOLPL	plaice, Alaska	Pleuronectes quadritubercul
SOLPT	sole, petrale	Eopsetta jordani
SOLRK	sole, rock	Pleuronectes bilineatus
SOLRX	sole, rex	Errex zachirus
SOLSD	sole, sand	Psettichthys melanostictus
SOLSL	sole, slender	Eopsetta exilis
SOLST	turbot, spotted	Pleuronichthys ritteri
SOLYF	sole, yellowfin	Pleuronectes asper
SPBAR	surfperch, barred	Amphistichus argenteus
SPBLK	perch, black	Embiotoca jacksoni
SPCAL	surfperch, calico	Amphistichus koelzi
SPDPA	spadefish, Pacific	Chaetodipterus zonatus
SPDWF	perch, dwarf	Micrometrus minimus
SPFAM	surfperch family	Embiotocidae
SPKLP	perch, kelp	Brachyistius frenatus
SPPIL	perch, pile	Rhacochilus vacca
SPPNK	seaperch, pink	Zalemibus rosaceus
SPRBW	seaperch, rainbow	Hypsurus caryi
SPREF	perch, reef	Micrometrus aurora
SPRTL	surfperch, redtail	Amphistichus rhodoteros
SPRUB	seaperch, rubberlip	Rhacochilus toxotes
SPSHN	seaperch, sharpnose	Phanerodon atripes
SPSHR	perch, shiner	Cymatogaster aggregata
SPSIL	surfperch, silver	Hyperprosopon ellipticum
SPSPF	surfperch, spotfin	Hyperprosopon anale
SPSTR	seaperch, striped	Embiotoca lateralis
SPWAL	surfperch, walleye	Hyperprosopon argenteum
SPWHT	seaperch, white	Phanerodon furcatus
SQTSE	squaretail, smalleye	Tetragonurus cuvieri
SRAGU	sierra, gulf	Scomberomorus concolor
SRAPA	sierra, Pacific	Scomberomorus sierra
SRDFS	swordfish	Xiphias gladius
STBAS	bass, striped	Morone saxatilis
STGEN	sturgeon genus	Acipenser
STGRN	sturgeon, green	Acipenser medirostris
STMUL	mullet, striped	Mugil cephalus
STWHT	sturgeon, white	Acipenser transmontanus
SUNFM	mola family	Molidae
SUNOC	sunfish, ocean	Mola mola
SVRFM	silverside family	Atherinidae
TBESN	snout, tube	Aulorhynchus flavidus
THRBK	thornback	Platyrrhinoidis triseriata
TNAAB	tuna, (albacore)	Thunnus alalunga

*CRFS Sampler Manual*

TNABE	tuna, bigeye	Thunnus obesus
TNABF	tuna, bluefin	Thunnus thynnus
TNASG	tunas (non-mackerel)	
TNASJ	tuna, skipjack	Katsuwonus pelamis
TNASL	tuna, slender	Allothunnus fallai
TNAYF	tuna, yellowfin	Thunnus albacares
TNGCA	touguefish, California	Symphurus atricauda
UNIFH	unidentified fish	
UNISF	unidentified (surface fish)	
WEKFS	weakfishes	Cynoscion
WOLFE	wolf-eel	Anarrhichthys ocellatus
WRAFM	wrasse family	Labridae
WRARK	wrasse, rock	Halichoeres semicinctus
YELTL	yellowtail	Seriola lalandei
5	crab tribe, true	Brachyuratribe
18	shark, frill	Chlamydoselachus arguineus
22	shark, whale	Rhincodon typus
23	shark, ragged tooth	Odontaspis ferox
26	shark, basking	Cetorhinus maximus
29	shark, bigeye thresher	Alopias superciliosus
33	shark, longnose cat	Apristurus kampae
35	shark, filetail cat	Parmatyrus xaniurus
39	shark, Pacific sharpnose	Rhizoprionodon longurio
44	shark genus, gray	Carcharhinus
50	shark family, hammerhead	Sphyrnidae
52	shark, smooth hammerhead	Sphyrna zygaena
56	shark, prickly	Echinorhinus cookei
68	skate, Bering	Bathyraxia interrupta
69	skate, black	Bathyraxia trachura
70	skate, Alaska	Bathyraxia parvifera
72	skate, flathead	Bathyraxia rosinensis
74	skate, rougthead	Raja trachura
82	manta family	Mobulidae
84	mobula, spinetail	Mobula japanica
85	mobula, smoothtail	Mobula thurstoni
90	machete	Elops affinis
94	conger, Catalina	Gnathophipis catalinensis
96	eel, Pacific worm	Myrophis vafer
97	eel, Pacific snake	Ophichthus triserialis
99	eel family, snipe	Nemichthyidae
100	eel, slender snake	Nemichthys scolopaceus
106	herring, middling thread	Opisthonema medirastre
107	herring, flatiron	Harengula thrissina
112	anchovy, slough	Anchoa delicatissima
113	anchoveta	Cetengraulis mysticetus
129	smelt, delta	Hypomesus transpacificus
131	smelt, rainbow	Osmerus mordax
139	spookfish family	Opisthoproctidae
140	barreleye	Macropinna microstoma
142	dragonfish, longfin	Tactostoma macropus
143	viperfish, Pacific	Chauliodus macouni
146	lancetfish family	Alepisauridae

*Sorted by Species Code*

148	daggertooth family	Anotopteridae
149	pearleye family	Scopelarchidae
150	pearleye, northern	Benthalbella dentata
151	lanternfish family	Myctophidae
152	lampfish, dogtooth	Ceratoscopelus townsendi
153	headlightfish, California	Diaphus theta
154	lampfish, pinpoint	Lampanyctus regalis
155	lampfish, patchwork	Notoscopelus resplendens
156	lampfish, northern	Stenobrachius leucopsarus
157	lanternfish, blue	Tarletonbeania crenularis
158	lampfish, diogenes	Diogenys lanternatus
159	flashlightfish	Protomyctophum crockeri
160	lampfish, Mexican	Triphoturus mexicanus
163	chihuil	Bagre panamensis
167	clingfish family	Gobiesocidae
169	clingfish, lined	Gobiesox eugrammus
170	clingfish, bearded	Gobiesox papillifer
171	clingfish, California	Gobiesox rhessondon
172	clingfish, kelp	Rimicola muscarum
173	clingfish, slender	Rimicola eigenmanni
174	frogfish, roughjaw	Antennarius avalonis
175	batfish, spotted	Zalieutes elater
176	seadevil, triplewart	Cryptopsaras couesi
709	flatnose, Pacific	Antimora microlepis
183	brotula, red	Brosomphycis marginata
184	eel, spotted cusk	Chilara taylora
185	eel, basketweave cusk	Otophidium scrippsae
187	eelpout, bigfin	Lycodes cortezianus
188	eelpout, Alaska	Bothrocara pusillum
189	eelpout, pallid	Lycodapus mandibularis
190	eelpout, shortfin	Lycodes brevipes
191	eelpout, black	Lycodes diapterus
192	eelpout, wattled	Lycodes palearis
193	eelpout, Canadian	Lycodes polaris
194	eelpout, polar	Lycodes turneri
195	shulupaoluk	Lycodes jugoricus
196	eelpout, pale	Lycodes pallidus
197	eelpout, blackbelly	Lycodopsis pacifica
198	eelpout, bearded	Lyconema barbatum
706	gerenadier, Pacific	Coryphaenoides acrolepis
201	halfbeak, longfin	Hemiramphus saltator
202	halfbeak	Hyporhamphus unifasciatus
203	halfbeak	Hyporhamphus rosae
204	halfbeak, ribbon	Euleptorhamphus viridis
205	flyingfish, sharpchin	Fodiator acutus
206	flyingfish, blackwing	Hirundichthys rondeleti
214	dory, mirror	Zenopsis nebulosa
216	crestfish	Lophotus lacepedei
217	ribbonfish family	Trachipteridae
219	ribbonfish, tapertail	Trachipterus fukuzaki
220	ribbonfish, scalloped	Zu cristatus
221	oarfish	Regalecus glesne

*CRFS Sampler Manual*

224	stickleback, ninespine	Pungitius pungitius
226	snipefish, slender	Macrorhamphosus gracilis
227	pipefish family	Sygnathidae
229	pipefish, barred	Syngnathus auliscus
230	pipefish, kelp	Syngnathus californiensis
231	seahorse, Pacific	Hippocampus ingens
707	rockfish, harlequin	Sebastes variegatus
293	rockfish, dwarf red	Sebastes rufinatus
708	rockfish, semaphore	Sebastes melanosema
298	searobin family	Triglidae
300	searobin, splitnose	Bellator xenisma
311	mackerel, Atka	Pleurogrammus monopterygius
314	skilfish	Erilepis zonifer
315	greenling, painted	Oxylebius pictus
316	sculpin, twohorn	Icelus bicornis
317	sculpin, spatulate	Icelus spatula
320	hamecon	Arteidiellus scaber
323	sculpin, smoothhead	Arteidius lateralis
324	sculpin, puget sound	Ruscarius meanyi
325	sculpin, bonehead	Arteidius notospilotus
326	sculpin, coralline	Arteidius corallinus
327	sculpin, roughcheek	Ruscarius creaseri
329	sculpin, crested	Blepsias bilobus
330	sculpin, silver spotted	Blepsias cirrhosus
332	sculpin, calico	Clinocottus embryum
333	sculpin, mosshead	Clinocottus glopiceps
338	sculpin, spinyhead	Dasycottus setiger
343	sculpin, armorhead	Gymnocanthus galeatus
347	lord, yellow Irish	Hemilepidotus jordani
349	sculpin, bigmouth	Hemitripterus bolini
354	sculpin, frogmouth	Icelinus oculatus
355	sculpin, pit head	Icelinus cavifrons
356	sculpin, fringed	Icelinus fimbriatus
357	sculpin, yellowchin	Icelinus quadriseriatus
360	sculpin, belligerent	Megalocottus platycephalus
361	sculpin, brightbelly	Microcottus sellaris
362	sculpin, plain	Myoxocephalus jaok
363	sculpin, warthead	Myoxocephalus niger
365	sculpin, fourhorn	Myoxocephalus quadricornis
366	sculpin, Arctic	Myoxocephalus scorpioides
367	sculpin, shorthorn	Myoxocephalus scorpius
369	sculpin, eyeshode	Nautichthys pribilovius
371	sculpin, saddleback	Oligocottus rimensis
372	sculpin, fluffy	Oligocottus snyderi
373	sculpin, thornback	Paricelinus hopliticus
374	sculpin, spineless	Phallocottus obtusus
375	sculpin, slim	Radulinus asprellus
376	sculpin, darter	Radulinus boleoides
377	sculpin, smoothgum	Radulinus vinculus
380	sculpin, kelp	Sigmistes caulias
381	sculpin, smithi	Sigmistes smithi
382	sculpin, monacled	Synchirus gilli

*Sorted by Species Code*

384	sculpin, roughspine	Triglops macellus
385	sculpin, ribbed	Triglops pingeli
386	sculpin, spectacled	Triglops scepticus
387	sculpin, roughback	Chitonotus pugettensis
388	sculpin, spinynose	Asemichthys taylori
389	sculpin, longfin	Jordani zonope
390	sculpin, lavender	Leiocottus hirundo
391	sculpin, butterfly	Hemilepidotus papilio
392	sculpin, snubnose	Orthoropias triacis
393	sculpin, tadpole	Psychrolutes paradoxus
394	sculpin, blob	Psychrolutes phrictus
395	sculpin, soft	Psychrolutes sigalutes
396	poacher family	Agonidae
397	poacher, northern spearnose	Agonopsis vulsa
398	poacher, southern spearnose	Agonopsis sterletus
399	alligatorfish, smooth	Anoplagonus inermis
400	alligatorfish, Aleutian	Aspidophoroides bartoni
401	alligatorfish, Arctic	Aspidophoroides olriki
402	starsnout, gray	Bathyagonus alascanus
403	starsnout, spinycheck	Bathyagonus infraspinitus
404	poacher, bigeye	Bathyagonus pentacanthus
405	poacher, blackfin	Bathyagonus nigripinnis
407	poacher, fourhorn	Hypsagonus quadricornis
408	poacher, Bering	Ocella dodecaedron
409	poacher, warty	Ocella verrucosa
410	poacher, pygmy	Odontopyxis trispinosa
411	poacher, tubenose	Pallasina barbata
412	poacher, blacktip	Xeneretmus latifrons
413	poacher, bluespotted	Xeneretmus triacanthus
414	poacher, pricklebreast	Stellerina xyosterna
415	snailfish family	Cyclopteridae
416	lumpsucker, smooth	Aptocyclus ventricosus
417	snailfish, blacktail	Careproctus melanurus
418	snailfish, blotched	Crystallichthys cyclopilus
419	lumpsucker, leatherfin	Eumicrotremus derjugini
420	lumpsucker, Pacific spiny	Eumicrotremus orbis
421	snailfish, spotted	Liparis callyodon
422	snailfish, ribbon	Liparis cyclopus
423	snailfish, polkadot	Liparis cyclostigma
424	snailfish, marbled	Liparis dennyi
425	snailfish, tidepool	Liparis florae
426	snailfish, slipskin	Liparis fucensis
427	seasnail, gelatinous	Liparis fabricii
428	snailfish, spiny	Liparis mucosus
429	snailfish, showy	Liparis pulchellus
430	snailfish, ringtail	Liparis rutteri
431	snailfish, tadpole	Nectoliparis pelagicus
432	snailfish, prickly	Paraliparis deani
433	snailfish, Bering	Liparis beringianus
434	snailfish, lobefin	Liparis greeni
437	grouper genus (epinephelus)	Epinephelus
438	cabrilla, spotted	Epinephelus analogus

*CRFS Sampler Manual*

439	grouper, snowy	Epinephelus niveatus
442	bass, splittail	Hemanthias signifer
448	seabass, pygmy	Serraniculus pumilio
451	bigeye family	Priacanthidae
453	cardinalfish, Guadalupe	Apogon guadalupensis
458	sucker, marlin	Remora osteochir
459	remora	Remora remora
460	remora, spearfish	Remora brachyptera
463	jack, green	Caranx caballus
464	bumper, Pacific	Chloroscombrus orqueta
465	leatherjacket	Oligoplites saurus
466	amberjack, Pacific	Seriola colburni
468	pompano, paloma	Trachinotus paitensis
469	pompano, gafftopsail	Trachinotus rhodopus
470	moonfish, Pacific	Selene peruviana
473	roosterfish	Nematistius pectoralis
474	dolphin family	Coryphaenidae
478	mojarra, spotfin	Eucinostomus argenteus
479	mojarra, Pacific flagfin	Eucinostomus gracilis
483	porgy, Pacific	Calamus brachysomus
495	goatfish, Mexican	Mulloidichthys dentatus
502	butterflyfish, threeband	Chaetodon humeralis
503	butterflyfish, scythe	Chaetodon falcifer
504	armorhead, pelagic	Pentaceros richardsoni
528	pomfret, Pacific	Brama japonica
529	pomfret, bigtooth	Brama orcin
530	pomfret, rough	Teractes asper
531	fanfish, Pacific	Pteraclis aesticola
532	pomfret, sickle	Taractichthys steindachneri
535	threadfin family	Polynemidae
536	bobo, blue	Polydactylus approximans
537	bobo, yellow	Polydactylus opercularis
543	sandfish, sailfin	Arctoscopus japonicus
546	ronquil, Alaskan	Bathymaster caeruleofascia
547	ronquil, smallmouth	Bathymaster leurolepis
548	searcher	Bathymaster signatus
550	stargazer, smooth	Kathetostoma avertuncus
554	blenny, mussel	Hypsoblennius jenkinsi
560	kelpfish, scarlet	Gibbonsia erythra
562	kelpfish, island	Alloclinus holderi
563	pikeblenny, orangethroat	Chaenopsis alepidota
564	blenny, deepwater	Cryptotrema corallinum
566	fringehead, yellowfin	Neoclinus stephensae
569	quillfish	Ptilichthys goodei
571	prickleback, pighead	Acantholumpenus mackayi
572	prickleback, lesser	Alectridium aurantiacum
573	prickleback, Y	Allolumpenus hypochrcmus
574	cockscorn, slender	Anoplarchus insignis
575	cockscorn, high	Anoplarchus purpureus
576	warbonnet, matchcheck	Chirollophus tarsodes
577	warbonnet, mosshead	Chirollophus nugator
578	warbonnet, decorated	Chirollophus decoratus

*Sorted by Species Code*

579	prickleback, nutcracker	Bryozoichthys lysimus
580	prickleback, trident	Gymnoclinus cristulatus
581	prickleback, longsnout	Lumpenella longirostris
582	eelblenny, slender	Lumpenus fabricii
584	shanny, daubed	Lumpenus maculatus
585	eelblenny, stout	Lumpenus medius
586	prickleback, ribbon	Phytichthys chirus
587	prickleback, bluebarred	Plectobranhus evides
588	prickleback, whitebarred	Poroclinus rothrocki
589	shanny, Arctic	Stichaeus punctatus
592	wrymouth, giant	Cryptacanthodes giganteus
593	wrymouth, dwarf	Cryptacanthodes aleutensis
594	snakeblenny, fourline	Eumesogrammus praecisus
595	cockscorn, stone	Alectrias alectrolophus
599	gunnel, longfin	Pholis clemensi
600	gunnel, stippled	Rhodymenichthys dolichogaster
601	gunnel, Bering	Pholis gilli
604	gunnel, red	Pholis schultzi
605	gunnel, rockweed	Apodichthys fucorum
606	gunnel, kelp	Ulvicola santaerosa
607	graveldiver	Scytalina cerdale
608	prowfish	Zaprora silenus
616	goby, cheekspot	Ilypnus gilberti
617	goby, halfblind	Lethops connetens
618	goby, zebra	Lythrypnus zebra
619	goby, shadow	Quietula ycauda
620	goby, trident	Tridentiger trigonocephalu
621	goby, blind	Typhlogobius californiensis
622	goby, tidewater	Eucyclogobius newberryi
623	sleeper, Pacific fat	Dormitator latifrons
625	mackerel family, snake	Trichiuridae
626	mackerel, snake	Gempylus serpens
627	escolar	Lepidocybium flavobrunneum
628	oilfish	Ruvettus pretiosus
630	scabbardfish, Pacific	Lepidopus fitchi
654	spearfish, shortbill	Tetrapturus angustirostris
656	cigarfish, longfin	Cubiceps paradoxus
680	dab, longhead	Pleuronectes proboscideus
699	puffer, oceanic	Lagocephalus lagocephalus
700	puffer, bullseye	Sphoeroides annulatus
701	burrfish, Pacific	Chilomycterus affinis
702	porcupinefish	Diodon hystrix
705	mola, slender	Ranzanic laevis
706	squid	Cephalopoda

**Sorted by Common Name**

SP CODE	COMMON NAME	SCIENTIFIC NAME
400	alligatorfish, Aleutian	Aspidophoroides bartoni
401	alligatorfish, Arctic	Aspidophoroides olriki
399	alligatorfish, smooth	Anoplagonus inermis
466	amberjack, Pacific	Seriola colburni
113	anchoveta	Cetengraulis mysticetus
ANCFM	anchovy family	Engraulidae
ANCGN	anchovy genus	Anchoa spp.
ANCDB	anchovy, deepbody	Anchoa compressa
ANCNO	anchovy, northern	Engraulis mordax
112	anchovy, slough	Anchoa delicatissima
ARGNT	argentine, Pacific	Argentina sialis
504	armorhead, pelagic	Pentaceros richardsoni
BARPA	barracuda, Pacific	Sphyræna argentea
140	barreleye	Macropinna microstoma
SBFAM	bass family, sea	Serranidae
SBKLP	bass, kelp	Paralabrax clathratus
442	bass, splittail	Hemanthias signifer
STBAS	bass, striped	Morone saxatilis
SBTHF	bass, threadfin	Pronotogrammus multifasciatus
175	batfish, spotted	Zalieutes elater
451	bigeye family	Priacanthidae
MARFM	billfish family	Istiophoridae
BLKSM	blacksmith	Chromis punctipinnis
FLNFM	blenny family, combtooth	Blenniidae
BLNBY	blenny, bay	Hypsoblennius gentilis
564	blenny, deepwater	Cryptotrema corallinum
554	blenny, mussel	Hypsoblennius jenkinsi
KLPRB	blenny, reef	Paraclinus integripinnis
BLNRP	blenny, rockpool	Hypsoblennius gilberti
536	bobo, blue	Polydactylus approximans
537	bobo, yellow	Polydactylus opercularis
BONEF	bonefish	Albula vulpes
BONPA	bonito, Pacific	Sarda chilensis
BOTOM	bottomfish (groundfish)	
BOXSP	boxfish, spiny	Ostracion diaphanum
183	brotula, red	Brosomphycis marginata
464	bumper, Pacific	Chloroscombrus orqueta
701	burrfish, Pacific	Chilomycterus affinis
BUTFM	butterfish family	Stromateidae
BUTFM	butterflyfish family	Chaetodontidae
503	butterflyfish, scythe	Chaetodon falcifer
502	butterflyfish, threeband	Chaetodon humeralis
RYFLY	butterflyray, California	Gymnura marmorata
SCCAB	cabezon	Scorpaenichthys marmoratus
438	cabrilla, spotted	Epinephelus analogus
SMCAP	capelin	Mallotus villosus
453	cardinalfish, Guadalupe	Apogon guadalupensis
CARPC	carp, common	Cyprinus carpio

**Sorted by Common Name**

CTFPE	catalufa, popeye	Pristigenys serrula
CATCN	catfish, channel	Ictalurus punctatus
163	chihuail	Bagre panamensis
SCBFM	chub family, sea	Kyphosidae
656	cigarfish, longfin	Cubiceps paradoxus
167	clingfish family	Gobiesocidae
170	clingfish, bearded	Gobiesox papillifer
171	clingfish, California	Gobiesox rhessondon
172	clingfish, kelp	Rimicola muscarum
169	clingfish, lined	Gobiesox eugrammus
CLNGN	clingfish, nothern	Gobiesox maeandricus
173	clingfish, slender	Rimicola eigenmanni
KLPFM	clinid family	Clinidae
575	cockscorn, high	Anoplarchus purpureus
574	cockscorn, slender	Anoplarchus insignis
595	cockscorn, stone	Alectrias alectrolophus
CODFM	cod family	Gadidae
CODPA	cod, Pacific	Gadus macrocephalus
CBFLS	combfish, longspine	Zaniolepis latipinnis
CBFSS	combfish, shortspine	Zaniolepis frenata
94	conger, Catalina	Gnathopis catalinensis
CRBCA	corbina, California	Menticirrhus undulatus
COROM	corvina, orangemouth	Cynoscion xanthulus
CORSF	corvina, shortfin	Cynoscion parvipinnis
CRBGN	crab genus, cancer	Cancer
5	crab tribe, true	Brachyuratribe
CRBDG	crab, dungeness	Cancer magister
CRBGR	crab, graceful rock	Cancer gracilis
CRBRR	crab, red rock	Cancer productus
216	crestfish	Lophotus lacepedei
CRKBK	croaker, black	Cheilotrema saturnum
CRKSF	croaker, spotfin	Roncador stearnsi
CROWT	croaker, white	Genyonemus lineatus
CRKYF	croaker, yellowfin	Umbrina roncador
CUTLP	cutlassfish, Pacific	Trichiurus nitens
680	dab, longhead	Pleuronectes proboscideus
148	daggertooth family	Anotopteridae
DAMFM	damsel fish family	Pomacentridae
DRADO	dolphin	Coryphaena hippurus
474	dolphin family	Coryphaenidae
POMDO	dolphin, pompano	Coryphaena equisetis
214	dory, mirror	Zenopsis nebulosa
DRGFM	dragonfish family	Stomiidae
142	dragonfish, longfin	Tactostoma macropus
DRMFM	drum family	Sciaenidae
CSKFM	eel family, cusk	Ophidiidae
SELFM	eel family, snake	Ophichthidae
99	eel family, snipe	Nemichthyidae
EELOR	eel order	Anguilliformes
185	eel, basketweave cusk	Otophidium scrippsae
97	eel, Pacific snake	Ophichthus triserialis
96	eel, Pacific worm	Myrophis vafer

*CRFS Sampler Manual*

100	eel, slender snake	Nemichthys scolopaceus
184	eel, spotted cusk	Chilara taylori
SELYL	eel, yellow snake	Ophichthus zophochir
582	eelblenny, slender	Lumpenus fabricii
585	eelblenny, stout	Lumpenus medius
ELPFM	eelpout family	Zoarcidae
188	eelpout, Alaska	Bothrocara pusillum
198	eelpout, bearded	Lyconema barbatum
187	eelpout, bigfin	Lycodes cortezianus
191	eelpout, black	Lycodes diapterus
197	eelpout, blackbelly	Lycodopsis pacifica
193	eelpout, Canadian	Lycodes polaris
196	eelpout, pale	Lycodes pallidus
189	eelpout, pallid	Lycodapus mandibularis
194	eelpout, polar	Lycodes turneri
190	eelpout, shortfin	Lycodes brevipes
192	eelpout, wattled	Lycodes palearis
627	escolar	Lepidocybium flavobrunneum
SMEUL	eulachon	Thaleichthys pacificus
531	fanfish, Pacific	Pteraclis aesticola
159	flashlightfish	Protomyctophum crockeri
FLTOR	flatfish order	Pleuronectiformes
709	flatnose, Pacific	Antimora microlepis
FLLFN	flounder family, lefteye	Bothidae
FLRFM	flounder family, righteye	Pleuronectidae
SOLAF	flounder, Arctic	Pleuronectes glacialis
FLRAR	flounder, arrowtooth	Atheresthes stomias
SOLBF	flounder, Bering	Hippoglossoides robustus
FLRKM	flounder, Kamchatka	Atheresthes evermanni
FLRST	flounder, starry	Platichthys stellatus
FLYFM	flyngfish family	Exocoetidae
206	flyngfish, blackwing	Hirundichthys rondeleti
FLYCA	flyngfish, California	Cypselurus californicus
205	flyngfish, sharpchin	Fodiator acutus
KLPOF	fringehead, onespots	Neoclinus urinotatus
KLPSF	fringehead, sarcastic	Neoclinus blanchardi
566	fringehead, yellowfin	Neoclinus stephensae
174	frogfish, roughjaw	Antennarius avalonis
GARIB	garibaldi	Hypsypops rubicundus
706	gerenadier, Pacific	Coryphaenoides acrolepis
495	goatfish, Mexican	Mulloidichthys dentatus
GOBFM	goby family	Gobiidae
GOBAR	goby, arrow	Clevelandia ios
BOGBY	goby, bay	Lepidogobius lepidus
GOBBE	goby, blackeye	Coryphopterus nicholsi
621	goby, blind	Typhlogobius californiensis
616	goby, cheekspot	Ilypnus gilberti
617	goby, halfblind	Lethops connetens
619	goby, shadow	Quietula ycauda
622	goby, tidewater	Eucyclogobius newberryi
620	goby, trident	Tridentiger trigonocephalu
BOGYL	goby, yellowfin	Acanthogobius flavimanus

*Sorted by Common Name*

618	goby, zebra	Lythrypnus zebra
607	graveldiver	Scytalina cerdale
GRNFM	greenling family	Hexagrammidae
GRNGN	greenling genus	Hexagrammos
GRNKP	greenling, kelp	Hexagrammos decagrammus
GRNMA	greenling, masked	Hexagrammos octogrammus
315	greenling, painted	Oxylebius pictus
GRNPT	greenling, painted	Oxylebius pictus
GRNRK	greenling, rock	Hexagrammos lagocephalus
GRNWT	greenling, whitespotted	Hexagrammos stelleri
437	grouper genus (epinephelus)	Epinephelus
GRPBT	grouper, broomtail	Mycteroperca xenarcha
GRPGF	grouper, gulf	Mycteroperca jordani
439	grouper, snowy	Epinephelus niveatus
GRUCA	grunion, California	Leuresthes tenuis
GNTFM	grunt family	Haemulidae
GUIFM	guitarfish family	Rhinobatidae
GUIBD	guitarfish, banded	Zapteryx exasperata
GUISN	guitarfish, shovelnose	Rhinobatos productus
GUNFM	gunnel family	Pholidae
601	gunnel, Bering	Pholis gilli
GUNCR	gunnel, crescent	Pholis laeta
606	gunnel, kelp	Ulvicola santaerosa
599	gunnel, longfin	Pholis clemensi
GUNPP	gunnel, penpoint	Apodichthys flavidus
604	gunnel, red	Pholis schultzi
605	gunnel, rockweed	Apodichthys fucorum
GUNSB	gunnel, saddleback	Pholis ornata
600	gunnel, stippled	Rhodymenichthys dolichogaster
HAGFM	hagfish order	Myxinidae
HAGBK	hagfish, black	Eptatretus deani
HAGPA	hagfish, Pacific	Eptatretus stouti
PHAKE	hake, Pacific	Merluccius productus
202	halfbeak	Hyporhamphus unifasciatus
203	halfbeak	Hyporhamphus rosae
201	halfbeak, longfin	Hemiramphus saltator
204	halfbeak, ribbon	Euleptorhamphus viridis
HALFM	halfmoon	Medialuna californiensis
HALCA	halibut, California	Paralichthys californicus
HALGL	halibut, Greenland	Reinhardtius hippoglossoides
HALPA	halibut, Pacific	Hippoglossus stenolepis
320	hamecon	Artediellus scaber
153	headlightfish, California	Diaphus theta
HERFM	herring family	Clupeidae
107	herring, flatiron	Harengula thrissina
106	herring, middling thread	Opisthonema medirastre
HERPA	herring, Pacific	Clupea pallasii
HERRD	herring, round	Etrumeus teres
JACFM	jack family	Carangidae
463	jack, green	Caranx caballus
KAWAK	kawakawa	Euthynnus affinis
KLPCR	kelpfish, crevice	Gibbonsia montereyensis

*CRFS Sampler Manual*

KLPGT	kelpfish, giant	Heterostichus rostratus
562	kelpfish, island	Alloclinus holderi
560	kelpfish, scarlet	Gibbonsia erythra
KLPSP	kelpfish, spotted	Gibbonsia elegans
KLPST	kelpfish, striped	Gibbonsia metzi
KLFC	killifish, California	Fundulus parvipinnis
KOSAL	king-of-the-salmon	Trachipterus altivelis
158	lampfish, diogenes	Diogenys lanternatus
152	lampfish, dogtooth	Ceratoscopelus townsendi
160	lampfish, Mexican	Triphoturus mexicanus
156	lampfish, northern	Stenobranchius leucopsarus
155	lampfish, patchwork	Notoscopelus resplendens
154	lampfish, pinpoint	Lampanyctus regalis
LMPFM	lamprey family	Petromyzontidae
LMPAR	lamprey, Arctic	Lampetra japonica
LMPPA	lamprey, Pacific	Entosphenus tridentatus
SOLPA	lance, Pacific sand	Ammodytes hexapterus
146	lancetfish family	Alepisauridae
LANLN	lancetfish, longnose	Alepisaurus ferox
151	lanternfish family	Myctophidae
157	lanternfish, blue	Tarletonbeania crenularis
465	leatherjacket	Oligoplites saurus
LNGCD	lingcod	Ophiodon elongatus
LZDFM	lizardfish family	Synodontidae
LZDCA	lizardfish, California	Synodus lunioceps
LOBSP	lobster, spiny	Panulirus interruptus
SCILG	lord genus, Irish	Hemilepidotus
SCBIL	lord, brown Irish	Hemilepidotus spinosus
SCRIL	lord, red Irish	Hemilepidotus hemilepidotus
347	lord, yellow Irish	Hemilepidotus jordani
LUVAR	louvar	Luvarus imperialis
419	lumpsucker, leatherfin	Eumicrotremus derjugini
420	lumpsucker, Pacific spiny	Eumicrotremus orbis
416	lumpsucker, smooth	Aptocyclus ventricosus
90	machete	Elops affinis
MACFM	mackerel family	Scombridae
625	mackerel family, snake	Trichiuridae
311	mackerel, Atka	Pleurogrammus monopterygius
MACBL	mackerel, bullet	Auxis rochei
MACPA	mackerel, chub (Pacific)	Scomber japonicus
MACFR	mackerel, frigate	Auxis thazard
JACMK	mackerel, jack	Trachurus symmetricus
626	mackerel, snake	Gempylus serpens
MANTA	manta	Manta birostris
82	manta family	Mobulidae
MARBK	marlin, black	Makaira indica
MARBL	marlin, blue	Makaira nigricans
MARST	marlin, striped	Tetrapturus audax
MIDGN	midshipman genus	Porichthys
MIDPF	midshipman, plainfin	Porichthys notatus
MIDSP	midshipman, specklefin	Porichthys myriaster
85	mobula, smoothtail	Mobula thurstoni

*Sorted by Common Name*

84	mobula, spinetail	Mobula japonica
MOJFM	mojarra family	Gerreidae
479	mojarra, Pacific flagfin	Eucinostomus gracilis
478	mojarra, spotfin	Eucinostomus argenteus
SUNFM	mola family	Molidae
705	mola, slender	Ranzanic laevis
470	moonfish, Pacific	Selene peruviana
MORAY	moray, California	Gymnothorax mordax
LJMUD	mudsucker, longjaw	Gillichthys mirabilis
STMUL	mullet, striped	Mugil cephalus
NEDCA	needlefish, California	Strongylura exilis
221	oarfish	Regalecus glesne
628	oilfish	Ruvettus pretiosus
OPAHS	opah	Lampris guttatus
OPALE	opaleye	Girella nigricans
RAJOR	order, skate and ray	Rajiformes
149	pearleye family	Scopelarchidae
150	pearleye, northern	Benthalbella dentata
PERFM	perch family	Percidae
SPBLK	perch, black	Embiotoca jacksoni
SPDWF	perch, dwarf	Micrometrus minimus
SPKLP	perch, kelp	Brachyistius frenatus
RFPOP	perch, Pacific ocean	Sebastes alutus
SPPIL	perch, pile	Rhacochilus vacca
SPREF	perch, reef	Micrometrus aurora
SPSHR	perch, shiner	Cymatogaster aggregata
PERZB	perch, zebra	Hermosilla azurea
563	pikeblenny, orangethroat	Chaenopsis alepidota
PILTF	pilotfish	Naucrastes ductor
227	pipefish family	Syngnathidae
229	pipefish, barred	Syngnathus auliscus
PIPEB	pipefish, bay	Syngnathus leptorhynchus
230	pipefish, kelp	Syngnathus californiensis
SOLPL	plaice, Alaska	Pleuronectes quadritubercul
396	poacher family	Agonidae
408	poacher, Bering	Ocella dodecaedron
404	poacher, bigeye	Bathyagonus pentacanthus
405	poacher, blackfin	Bathyagonus nigripinnis
412	poacher, blacktip	Xeneretmus latifrons
413	poacher, bluespotted	Xeneretmus triacanthus
407	poacher, fourhorn	Hypsagonus quadricornis
397	poacher, northern spearnose	Agonopsis vulsa
414	poacher, pricklebreast	Stellerina xyosterna
410	poacher, pygmy	Odontopyxis trispinosa
398	poacher, southern spearnose	Agonopsis sterletus
411	poacher, tubenose	Pallasina barbata
409	poacher, warty	Ocella verrucosa
POLWE	pollock, walleye	Theragra chalcogramma
POMFM	pomfret family	Bramidae
529	pomfret, bigtooth	Brama orcin
528	pomfret, Pacific	Brama japonica
530	pomfret, rough	Teractes asper

*CRFS Sampler Manual*

532	pomfret, sickle	Taractichthys steindachneri
469	pompano, gafftopsail	Trachinotus rhodopus
POMPA	pompano, Pacific (butterfish)	Peprilus simillimus
468	pompano, paloma	Trachinotus paitensis
702	porcupinefish	Diodon hystrix
483	porgy, Pacific	Calamus brachysomus
PRKFM	prickleback family	Stichaeidae
PRKBK	prickleback, black	Xiphister atropurpureus
587	prickleback, bluebarred	Plectobranthus evides
572	prickleback, lesser	Alectridium aurantiacum
581	prickleback, longsnout	Lumpenella longirostris
PRKMK	prickleback, monkeyface	Cebidichthys violaceus
579	prickleback, nutcracker	Bryozoichthys lysimus
571	prickleback, pighead	Acantholumpenus mackayi
586	prickleback, ribbon	Phytichthys chirus
PRKRK	prickleback, rock	Xiphister mucosus
PRKSN	prickleback, snake	Lumpenus sagitta
580	prickleback, trident	Gymnoclinus cristulatus
588	prickleback, whitebarred	Poroclinus rothrocki
573	prickleback, Y	Allolumpenus hypochrcmus
608	prowfish	Zaprora silenus
PUFFM	puffer family	Tetraodontidae
700	puffer, bullseye	Sphoeroides annulatus
699	puffer, oceanic	Lagocephalus lagocephalus
QUEEN	queenfish	Seriphus politus
569	quillfish	Ptilichthys goodei
RAGFS	ragfish	lcosteus aenagmaticus
RATFS	rattfish, spotted	Hydrolagus colliei
RYBAT	ray, bat	Myliobatis californica
ERYPA	ray, Pacific electric	Torpedo californica
459	remora	Remora remora
REMFM	remora family	Echeneidae
460	remora, spearfish	Remora brachyptera
217	ribbonfish family	Trachipteridae
220	ribbonfish, scalloped	Zu cristatus
219	ribbonfish, tapertail	Trachipterus fukuzaki
RFGEN	rockfish genus	Sebastes
RFBOC	rockfish, (bocaccio)	Sebastes paucispinis
RFPEP	rockfish, (chilipepper)	Sebastes goodei
RFCOW	rockfish, (cowcod)	Sebastes levis
RFTRE	rockfish, (treefish)	Sebastes serriceps
RFAUR	rockfish, aurora	Sebastes aurora
RFBNK	rockfish, bank	Sebastes rufus
RFBK	rockfish, black	Sebastes melanops
RFBAY	rockfish, black and yellow	Sebastes chrysomelas
RFBKG	rockfish, blackgill	Sebastes melanostomus
RFBLU	rockfish, blue	Sebastes mystinus
RFBSP	rockfish, bronzespotted	Sebastes gilli
RFBRN	rockfish, brown	Sebastes auriculatus
RFCLC	rockfish, calico	Sebastes dalli
RFCAN	rockfish, canary	Sebastes pinniger
RFCMA	rockfish, chameleon	Sebastes phillipsi

*Sorted by Common Name*

RFCHN	rockfish, China	Sebastes nebulosus
RFCOP	rockfish, copper	Sebastes caurinus
RFDBL	rockfish, darkblotched	Sebastes crameri
RFDUS	rockfish, dusky	Sebastes ciliatus
293	rockfish, dwarf red	Sebastes rufinanus
RFFLG	rockfish, flag	Sebastes rubrivinctus
RFFRK	rockfish, freckled	Sebastes lentiginosus
RFGOP	rockfish, gopher	Sebastes carnatus
RFGRS	rockfish, grass	Sebastes rastrelliger
RFGBL	rockfish, greenblotched	Sebastes rosenblatti
RFGRN	rockfish, greenspotted	Sebastes chlorostictus
RFGST	rockfish, greenstriped	Sebastes elongatus
RFHBD	rockfish, halfbanded	Sebastes semicinctus
707	rockfish, harlequin	Sebastes variegatus
RFHNC	rockfish, honeycomb	Sebastes umbrosus
RFKLP	rockfish, kelp	Sebastes atrovirens
RFMEX	rockfish, Mexican	Sebastes macdonaldi
RFOLV	rockfish, olive	Sebastes serranoides
RFPNK	rockfish, pink	Sebastes eos
RFPRS	rockfish, pinkrose	Sebastes simulator
RFPSD	rockfish, Puget Sound	Sebastes emphaeus
RFPGY	rockfish, pygmy	Sebastes wilsoni
RFQIL	rockfish, quillback	Sebastes maliger
RFRBD	rockfish, redbanded	Sebastes babcocki
RFRST	rockfish, redstripe	Sebastes proriger
RFRTN	rockfish, rosethorn	Sebastes helvomaculatus
RFROS	rockfish, rosy	Sebastes rosaceus
RFRGH	rockfish, roughey	Sebastes aleutianus
708	rockfish, semaphore	Sebastes melanosema
RFSCN	rockfish, sharpchin	Sebastes zacentrus
RFSHB	rockfish, shortbelly	Sebastes jordani
RFSRK	rockfish, shorttraker	Sebastes borealis
RFSLG	rockfish, silvergray	Sebastes brevispinis
RFSPK	rockfish, speckled	Sebastes ovalis
RFSNS	rockfish, splitnose	Sebastes diploproa
RFSQS	rockfish, squarespotted	Sebastes hopkinsi
RFSTA	rockfish, starry	Sebastes constellatus
RFSTR	rockfish, stripetail	Sebastes saxicola
RFSDS	rockfish, swordspine	Sebastes ensifer
RFTIG	rockfish, tiger	Sebastes nigrocinctus
RFVER	rockfish, vermilion	Sebastes miniatus
RFWTB	rockfish, whitebelly	Sebastes vexillaris
RFWID	rockfish, widow	Sebastes entomelas
RFYFY	rockfish, yelloweye	Sebastes ruberrimus
RFYMN	rockfish, yellowmouth	Sebastes reedi
RFYTL	rockfish, yellowtail	Sebastes flavidus
ROCKH	rockhead	Bothragonus swani
RNQFM	ronquil family	Bathymasteridae
546	ronquil, Alaskan	Bathymaster caeruleofascia
RNQNO	ronquil, northern	Ronqilus jordani
547	ronquil, smallmouth	Bathymaster leurolepis
473	roosterfish	Nematistius pectoralis

*CRFS Sampler Manual*

SABLE	sablefish	Anoplopoma fimbria
SABFM	sablefish family	Anoplopomatidae
SAILF	sailfish	Istiophorus platypterus
SALEM	salema	Xenistius californiensis
SALFM	salmon family	Salmonidae
SALGN	salmon genus	Oncorhynchus spp.
SALAT	salmon, Atlantic	Salmo salar
SALCK	salmon, chinook	Oncorhynchus tshawytscha
SALCM	salmon, chum	Oncorhynchus keta
SALCO	salmon, coho	Oncorhynchus kisutch
SALPK	salmon, pink	Oncorhynchus gorbuscha
SALSE	salmon, sockeye	Oncorhynchus nerka
SBGEN	sandbass genus	Paralabrax
SBBAR	sandbass, barred	Paralabrax nebulifer
SBSPT	sandbass, spotted	Paralabrax maculatofascia
DABGN	sanddab genus	Citharichthys
DABLF	sanddab, longfin	Citharichthys xanthostigma
DABPA	sanddab, Pacific	Citharichthys sordidus
DABSP	sanddab, speckled	Citharichthys stigmaeus
SNDFM	sandfish family	Trichodontidae
SNDPA	sandfish, Pacific	Trichodon trichodon
543	sandfish, sailfin	Arctoscopus japonicus
SARPA	sardine, Pacific	Sardinops sagax
SARGO	sargo	Anisotremus davidsoni
SAUPA	saury, Pacific	Coloabis saira
630	scabbardfish, Pacific	Lepidopus fitchi
SCBRZ	scabbardfish, razorback	Assurger anzac
MSCAD	scad, Mexican	Decapterus scombrinus
SCRFM	scorpionfish family	Scorpaenidae
SCRCA	scorpionfish, California	Scorpaena guttata
SCRRB	scorpionfish, rainbow	Scorpaenodes xyris
SCFAM	sculpin family	Cottidae
SCANT	sculpin, antlered	Enophrys diceraus
366	sculpin, Arctic	Myoxocephalus scorpioides
SCASH	sculpin, Arctic staghorn	Gymnocanthus tricuspis
343	sculpin, armorhead	Gymnocanthus galeatus
SCBLD	sculpin, bald	Clinocottus recalvus
360	sculpin, belligerent	Megalocottus platycephalus
349	sculpin, bigmouth	Hemitripterus bolini
SCBKF	sculpin, blackfin	Malacocottus kincaidi
394	sculpin, blob	Psychrolutes phrictus
325	sculpin, bonehead	Artedius notospilotus
361	sculpin, brightbelly	Microcottus sellaris
SCBUF	sculpin, buffalo	Enophrys bison
SCBUL	sculpin, bull	Enophrys taurina
391	sculpin, butterfly	Hemilepidotus papilio
332	sculpin, calico	Clinocottus embryum
SCCRG	sculpin, coastrange	Cottus aleuticus
326	sculpin, coralline	Artedius corallinus
329	sculpin, crested	Blepsias bilobus
376	sculpin, darter	Radulinus boleoides
SCDSK	sculpin, dusky	Icelinus burchani

*Sorted by Common Name*

369	sculpin, eyeshode	Nautichthys pribilovius
372	sculpin, fluffy	Oligocottus snyderi
365	sculpin, fourhorn	Myoxocephalus quadricornis
356	sculpin, fringed	Icelinus fimbriatus
354	sculpin, frogmouth	Icelinus oculatus
SCGRT	sculpin, great	Myoxocephalus polyacanthoceph
SCGRU	sculpin, grunt	Rhamphocottus richardsoni
380	sculpin, kelp	Sigmistes cauias
390	sculpin, lavender	Leiocottus hirundo
SCLST	sculpin, leister	Enophrys lucasi
389	sculpin, longfin	Jordani zonope
382	sculpin, monacled	Synchirus gilli
333	sculpin, mosshead	Clinocottus glopiceps
SCNTH	sculpin, northern	Icelinus borealis
SCPSH	sculpin, Pacific staghorn	Leptocottus armatus
SCPAD	sculpin, padded	Artedius fenestralis
355	sculpin, pit head	Icelinus cavifrons
362	sculpin, plain	Myoxocephalus jaok
SCPRK	sculpin, prickly	Cottus asper
324	sculpin, puget sound	Ruscarius meanyi
385	sculpin, ribbed	Triglops pingeli
SCRSL	sculpin, rosylip	Ascelichthys rhodorus
387	sculpin, roughback	Chitonotus pugettensis
327	sculpin, roughcheek	Ruscarius creaseri
384	sculpin, roughspine	Triglops macellus
371	sculpin, saddleback	Oligocottus rimensis
SCSFN	sculpin, sailfin	Nautichthys oculo fasciatus
SCSCL	sculpin, scaled	Archaulus biserialis
SCSLH	sculpin, scalyhead	Artedius harringtoni
SCSCT	sculpin, scissortail	Triglops forficata
SCSHN	sculpin, sharpnose	Clinocottus acuticeps
367	sculpin, shorthorn	Myoxocephalus scorpius
330	sculpin, silver spotted	Blepsias cirrhosus
375	sculpin, slim	Radulinus asprellus
381	sculpin, smithi	Sigmistes smithi
377	sculpin, smoothgum	Radulinus vinculus
323	sculpin, smoothhead	Artedius lateralis
392	sculpin, snubnose	Orthoropias triacis
395	sculpin, soft	Psychrolutes sigalutes
317	sculpin, spatulate	Icelus spatula
386	sculpin, spectacled	Triglops scepticus
374	sculpin, spineless	Phalloccottus obtusus
338	sculpin, spinyhead	Dasycottus setiger
388	sculpin, spinynose	Asemichthys taylori
SCSPT	sculpin, spotfin	Icelinus tenuis
393	sculpin, tadpole	Psychrolutes paradoxus
373	sculpin, thornback	Paricelinus hopliticus
SCTRF	sculpin, threadfin	Icelinus filamentosus
SCTDP	sculpin, tidepool	Oligocottus maculosus
316	sculpin, twohorn	Icelus bicornis
363	sculpin, warthead	Myoxocephalus niger
SCWOL	sculpin, wolly	Clinocottus analis

*CRFS Sampler Manual*

357	sculpin, yellowchin	Icelinus quadriseriatus
GNTSB	seabass, giant	Stereolepis gigas
448	seabass, pygmy	Serraniculus pumilio
SBWHT	seabass, white	Atractoscion nobilis
176	seadevil, triplewart	Cryptopsaras couesi
231	seahorse, Pacific	Hippocampus ingens
SPPNK	seaperch, pink	Zalembeus rosaceus
SPRBW	seaperch, rainbow	Hypsurus caryi
SPRUB	seaperch, rubberlip	Rhacochilus toxotes
SPSHN	seaperch, sharpnose	Phanerodon atripes
SPSTR	seaperch, striped	Embiotoca lateralis
SPWHT	seaperch, white	Phanerodon furcatus
548	searcher	Bathymaster signatus
298	searobin family	Triglidae
SERLT	searobin, limptail	Prionotus stephanophrys
300	searobin, splitnose	Bellator xenisma
427	seasnail, gelatinous	Liparis fabricii
SEHOR	senorita	Oxyjulis californica
SHADA	shad, American	Alosa sapidissima
589	shanny, Arctic	Stichaeus punctatus
584	shanny, daubed	Lumpenus maculatus
CTSM	shark family, cat	Scyliorhinidae
CSHF	shark family, cow	Hexanchidae
SHDF	shark family, dogfish	Squalidae
FRSFM	shark family, frill	Chlamydoselachidae
50	shark family, hammerhead	Sphyrnidae
SHMF	shark family, mackerel	Lamnidae
SHRF	shark family, requiem	Carcharhinidae
44	shark genus, gray	Carcharhinus
26	shark, basking	Cetorhinus maximus
29	shark, bigeye thresher	Alopias superciliosus
SHBL	shark, blue	Prionace glauca
SHBNH	shark, bonnethead	Sphyrna tiburo
SHBCS	shark, brown cat	Apristurus brunneus
SHBUL	shark, bull	Carcharhinus leucas
SHDKY	shark, dusky	Carcharhinus obscurus
35	shark, filetail cat	Parmatyrus xaniurus
18	shark, frill	Chlamydoselachus arguineus
SHHRN	shark, horn	Heterodontus francisci
SHLEP	shark, leopard	Triakis semifasciata
33	shark, longnose cat	Apristurus kampae
SHNTH	shark, narrowtooth	Carcharhinus brachyurus
SHANG	shark, Pacific angel	Squatina californica
39	shark, Pacific sharpnose	Rhizoprionodon longurio
SHSLP	shark, Pacific sleeper	Somniosus pacificus
56	shark, prickly	Echinorhinus cookei
23	shark, ragged tooth	Odontaspis ferox
SHSAL	shark, salmon	Lamna ditropis
SHSEV	shark, seven gill	Notorynchus maculatus
SHSMK	shark, shortfin mako	Isurus oxyrinchus
SHSIX	shark, six gill	Hexanchus griseus
52	shark, smooth hammerhead	Sphyrna zygaena

*Sorted by Common Name*

SHFIN	shark, soupfin	Galeorhinus zyopterus
SHSDG	shark, spiny dogfish	Squalus acanthias
SHSWL	shark, swell	Cephaloscyllium ventriosum
SHTHR	shark, thresher	Alopias vulpinus
SHTIG	shark, tiger	Galeocerdo cuvieri
22	shark, whale	Rhincodon typus
SHWHT	shark, white	Carcharodon carcharias
SHEEP	sheephead, California	Semicossyphus pulcher
195	shulupaoluk	Lycodes jugoricus
SRAGU	sierra, gulf	Scomberomorus concolor
SRAPA	sierra, Pacific	Scomberomorus sierra
SVRFM	silverside family	Atherinidae
SKFAM	skate family	Rajidae
70	skate, Alaska	Bathyraxia parmaifera
SKALT	skate, Aleutian	Bathyraxia aleutica
68	skate, Bering	Bathyraxia interrupta
SKBIG	skate, big	Raja binoculata
69	skate, black	Bathyraxia trachura
SKTCA	skate, California	Raja inornata
72	skate, flathead	Bathyraxia rosispinis
SKLGN	skate, longnose	Raja rhina
74	skate, rougtail	Raja trachura
SKSTY	skate, starry	Raja stellulata
314	skiffish	Erilepis zonifer
SKBGN	skipback genus	Euthynnus
BLKSJ	skipjack, black	Euthynnus lineatus
623	sleeper, Pacific fat	Dormitator latifrons
SMFAM	smelt family	Osmeridae
DSSFM	smelt family, deepsea	Bathylagidae
SMJAK	smelt, (jacksmelt)	Atherinopsis californiensis
SMTOP	smelt, (topsmelt)	Atherinops affinis
129	smelt, delta	Hypomesus transpacificus
SMLGF	smelt, longfin	Spirinchus thlaeichthys
SMNGT	smelt, night	Spirinchus starksi
131	smelt, rainbow	Osmerus mordax
SMSUR	smelt, surf	Hypomesus pretiosus
SMWTB	smelt, whitebait	Allosmerus elongatus
SHSGN	smoothhound genus	Mustelus
SHBSM	smoothhound, brown	Mustelus henlei
SHGSM	smoothhound, gray	Mustelus californicus
SHSSM	smoothhound, sicklefin	Mustelus lunulatus
CASTG	smoothtongue, California	Leuoroglossus stilbius
415	snailfish family	Cyclopteridae
433	snailfish, Bering	Liparis beringianus
417	snailfish, blacktail	Careproctus melanurus
418	snailfish, blotched	Crystallichthys cyclopilus
434	snailfish, lobefin	Liparis greeni
424	snailfish, marbled	Liparis dennyi
423	snailfish, polkadot	Liparis cyclostigma
432	snailfish, prickly	Paraliparis deani
422	snailfish, ribbon	Liparis cyclopus
430	snailfish, ringtail	Liparis rutteri

*CRFS Sampler Manual*

429 snailfish, showy  
 426 snailfish, slipskin  
 428 snailfish, spiny  
 421 snailfish, spotted  
 431 snailfish, tadpole  
 425 snailfish, tidepool  
 594 snakeblenny, fourline  
 226 snipefish, slender  
 TBESN snout, tube  
 SOLBG sole, bigmouth  
 SOLBT sole, butter  
 SOLCO sole, C-O  
 SOLCF sole, curlfin  
 SOLDS sole, deepsea  
 SOLDV sole, Dover  
 SOLEG sole, English  
 SOLFT sole, fantail  
 SOLFH sole, flathead  
 SOLPT sole, petrale  
 SOLRX sole, rex  
 SOLRK sole, rock  
 SOLSD sole, sand  
 SOLSL sole, slender  
 SOLYF sole, yellowfin  
 SPDPA spadefish, Pacific  
 654 spearfish, shortbill  
 139 spookfish family  
 SQTSE squaretail, smalleye  
 706 squid  
 550 stargazer, smooth  
 402 starsnout, gray  
 403 starsnout, spinycheck  
 SKBFM stickleback family  
 224 stickleback, ninespine  
 SKBTS stickleback, threespine  
 SGFAM stingray family  
 SGEN stingray genus  
 SGDIA stingray, diamond  
 SGPEL stingray, pelagic  
 SGRND stingray, round  
 STGEN sturgeon genus  
 STGRN sturgeon, green  
 STWHT sturgeon, white  
 458 sucker, marlin  
 SNFFM sunfish family  
 SUNOC sunfish, ocean  
 SPFAM surfperch family  
 SPBAR surfperch, barred  
 SPCAL surfperch, calico  
 SPRTL surfperch, redtail  
 SPSIL surfperch, silver  
 SPSPF surfperch, spotfin

Liparis pulchellus  
 Liparis fucensis  
 Liparis mucosus  
 Liparis callyodon  
 Nectoliparis pelagicus  
 Liparis florum  
 Eumesogrammus praecius  
 Macrorhamphosus gracilis  
 Aulorhynchus flavidus  
 Hippoglossina stomata  
 Pleuronectes isolepis  
 Pleuronichthys coenosus  
 Pleuronichthys decurrens  
 Embassichthys bathybius  
 Microstomus pacificus  
 Pleuronectes vetulus  
 Xysteurys liolepis  
 Hippoglossoides elassodon  
 Eopsetta jordani  
 Errex zachirus  
 Pleuronectes bilineatus  
 Psettichthys melanostictus  
 Eopsetta exilis  
 Pleuronectes asper  
 Chaetodipterus zonatus  
 Tetrapturus angustirostris  
 Opisthoproctidae  
 Tetragonurus cuvieri  
 Cephalopoda  
 Kathetostoma avaruncus  
 Bathyagonus alascanus  
 Bathyagonus infraspinus  
 Gasterosteidae  
 Pungitius pungitius  
 Gasterosteus aculeatus  
 Dasyatidae  
 Dasyatis spp.  
 Dasyatis dipterura  
 Dasyatis violacea  
 Urolophus halleri  
 Acipenser  
 Acipenser medirostris  
 Acipenser transmontanus  
 Remora osteochir  
 Centrarchidae  
 Mola mola  
 Embiotocidae  
 Amphistichus argenteus  
 Amphistichus koelzi  
 Amphistichus rhodotus  
 Hyperprosopon ellipticum  
 Hyperprosopon anale

*Sorted by Common Name*

SPWAL surfperch, walleye  
 SRDFS swordfish  
 THRBK thornback  
 RFLST thornyhead, longspine  
 RFSST thornyhead, shortspine  
 535 threadfin family  
 CODTC tomcod, Pacific  
 TNGCA touguefish, California  
 FTRIG triggerfish, finescale  
 SALAC trout, Arctic char  
 SALCT trout, cutthroat  
 SALRB trout, rainbow  
 SALTR trouts, sea run  
 TNAAB tuna, (albacore)  
 TNABE tuna, bigeye  
 TNABF tuna, bluefin  
 TNASJ tuna, skipjack  
 TNASL tuna, slender  
 TNAYF tuna, yellowfin  
 TNASG tunas (non-mackerel)  
 SOLDT turbot, diamond  
 SOLHT turbot, hornyhead  
 SOLST turbot, spotted  
 SHUNI unidentified (sharks)  
 UNISF unidentified (surface fish)  
 UNIFH unidentified fish  
 SALDV Varden, Dolly  
 143 viperfish, Pacific  
 578 warbonnet, decorated  
 576 warbonnet, matcheck  
 577 warbonnet, mosshead  
 WEKFS weakfishes  
 REMWS whalesucker  
 OCWHT whitefish, ocean  
 WOLFE wolf-eel  
 WRAFM wrasse family  
 WRARK wrasse, rock  
 593 wrymouth, dwarf  
 592 wrymouth, giant  
 YELTL yellowtail

Hyperprosopon argenteum  
 Xiphias gladius  
 Platyrrhinoidis triseriata  
 Sebastolobus altivelis  
 Sebastolobus alascanus  
 Polynemidae  
 Microgadus proximus  
 Symphurus atricauda  
 Balistes polylepis  
 Salvelinus alpinus  
 Oncorhynchus clarki  
 Oncorhynchus mykiss  
  
 Thunnus alalunga  
 Thunnus obesus  
 Thunnus thynnus  
 Katsuwonus pelamis  
 Allothunnus fallai  
 Thunnus albacares  
  
 Hypopsetta guttulata  
 Pleuronichthys verticalis  
 Pleuronichthys ritteri  
  
 Salvelinus malma  
 Chauliodus macouni  
 Chirolophis decoratus  
 Chirolophis tarsodes  
 Chirolophis nugator  
 Cynoscion  
 Remora australis  
 Caulolatilus princeps  
 Anarrhichthys ocellatus  
 Labridae  
 Halichoeres semicinctus  
 Cryptacanthodes aleutensis  
 Cryptacanthodes giganteus  
 Seriola lalandei

**Sorted by AFS Common Name**

SP CODE	AFS COMMON NAME	SCIENTIFIC NAME
188	Alaska eelpout	Bothrocara pusillum
SOLPL	Alaska plaice	Pleuronectes quadritubercul
70	Alaska skate	Bathyraxa parmaifera
546	Alaskan ronquill	Bathymaster caeruleofascia
TNAAB	albacore	Thunnus alalunga
400	Aleutian alligatorfish	Aspidophoroides bartoni
SKALT	Aleutian skate	Bathyraxa aleutica
SHADA	American shad	Alosa sapidissima
113	anchoveta	Cetengraulis mysticetus
ANCFM	anchovy family	Engraulidae
ANCGN	anchovy genus	Anchoa spp.
SCANT	antlered sculpin	Enophrys diceraus
401	Arctic alligatorfish	Aspidophoroides olriki
SALAC	Arctic char	Salvelinus alpinus
SOLAF	Arctic flounder	Pleuronectes glacialis
LMPAR	Arctic lamprey	Lampetra japonica
366	Arctic sculpin	Myoxocephalus scorpioides
589	Arctic shanny	Stichaeus punctatus
SCASH	Arctic staghorn sculpin	Gymnocanthus tricuspid
343	armorhead sculpin	Gymnocanthus galeatus
GOBAR	arrow goby	Clevelandia ios
FLRAR	arrowtooth flounder	Atheresthes stomias
311	Atka mackerel	Pleurogrammus monopterygius
SALAT	Atlantic salmon	Salmo salar
RFAUR	aurora rockfish	Sebastes aurora
SCBLD	bald sculpin	Clinocottus recalvus
GUIBD	banded guitarfish	Zapteryx exasperata
RFBNK	bank rockfish	Sebastes rufus
229	barred pipefish	Syngnathus auliscus
SBBAR	barred sandbass	Paralabrax nebulifer
SPBAR	barred surfperch	Amphistichus argenteus
140	barreleye	Macropinna microstoma
185	basketweave cusk eel	Otophidium scrippsae
26	basking shark	Cetorhinus maximus
RYBAT	bat ray	Myliobatis californica
BLNBY	bay blenny	Hypsoblennius gentilis
BOGBY	bay goby	Lepidogobius lepidus
PIPEB	bay pipefish	Syngnathus leptorhynchus
170	bearded clingfish	Gobiesox papillifer
198	bearded eelpout	Lyconema barbatum
360	belligerent sculpin	Megalocottus platycephalus
SOLBF	Bering flounder	Hippoglossoides robustus
601	Bering gunnel	Pholis gilli
408	Bering poacher	Ocella dodecaedron
68	Bering skate	Bathyraxa interrupta
433	Bering snailfish	Liparis beringianus
SKBIG	big skate	Raja binoculata
451	bigeye family	Priacanthidae

**Sorted by AFS Common Name**

404	bigeye poacher	Bathyraxonus pentacanthus
29	bigeye thresher shark	Alopias superciliosus
TNABE	bigeye tuna	Thunnus obesus
187	bigfin eelpout	Lycodes cortezianus
349	bigmouth sculpin	Hemitripterus bolini
SOLBG	bigmouth sole	Hippoglossina stomata
529	bigtooth pomfret	Brama orcini
MARFM	billfish family	Istiophoridae
RFBAY	black and yellow rockfish	Sebastes chrysomelas
CRKBK	black croaker	Cheilotrema saturnum
191	black eelpout	Lycodes diapterus
HAGBK	black hagfish	Eptatretus deani
MARBK	black marlin	Makaira indica
SPBLK	black perch	Embiotoca jacksoni
PRKBK	black prickleback	Xiphister atropurpureus
RFBK	black rockfish	Sebastes melanops
69	black skate	Bathyraxa trachura
BLKSJ	black skipjack	Euthynnus lineatus
197	blackbelly eelpout	Lycodopsis pacifica
GOBBE	blackeye goby	Coryphopterus nicholsi
405	blackfin poacher	Bathyraxonus nigripinnis
SCBKF	blackfin sculpin	Malacocottus kincaidi
RFBKG	blackgill rockfish	Sebastes melanostomus
BLKSM	blacksmith	Chromis punctipinnis
417	blacktail snailfish	Careproctus melanurus
412	blacktip poacher	Xeneretmus latifrons
206	blackwing flyingfish	Hirundichthys rondeleti
621	blind goby	Typhlogobius californiensis
394	blob sculpin	Phychrolutes phrictus
418	blotched snailfish	Crystallichthys cyclopilus
536	blue bobo	Polydactylus approximans
157	blue lanternfish	Tarletonbeania crenularis
MARBL	blue marlin	Makaira nigricans
RFBLU	blue rockfish	Sebastes mystinus
SHBLU	blue shark	Prionace glauca
587	bluebarred prickleback	Plectobranthus evides
TNABF	bluefin tuna	Thunnus thynnus
413	bluespotted poacher	Xeneretmus triacanthus
RFBBC	bocaccio	Sebastes paucispinis
BONEF	bonefish	Albula vulpes
325	bonehead sculpin	Artemius notospilotus
SHBNH	bonnethead shark	Sphyrna tiburo
BOTOM	bottomfish (groundfish)	
361	brightbelly sculpin	Microcottus sellaris
RFBSP	bronzespotted rockfish	Sebastes gilli
GRPBT	broomtail grouper	Mycteroperca xenarcha
SHBBS	brown cat shark	Apristurus brunneus
SCBIL	brown Irish lord	Hemilepidotus spinosus
RFBRN	brown rockfish	Sebastes auriculatus
SHBSM	brown smoothhound	Mustelus henlei
SCBUF	buffalo sculpin	Enophrys bison
SCBUL	bull sculpin	Enophrys taurina

*CRFS Sampler Manual*

SHBUL bull shark  
 MACBL bullet mackerel  
 700 bullseye puffer  
 SOLBT butter sole  
 BUTFM butterfly family  
 391 butterfly sculpin  
 BUTFM butterflyfish family  
 SCCAB cabezon  
 RFCLO calico rockfish  
 332 calico sculpin  
 SPCAL calico surfperch  
 RYFLY California butterflyray  
 171 California clingfish  
 CRBCA California corbina  
 FLYCA California flyingfish  
 GRUCA California grunion  
 HALCA California halibut  
 153 California headlightfish  
 KLFCAL California killifish  
 LZDCA California lizardfish  
 MORAY California moray  
 NEDCA California needlefish  
 SCRCAL California scorpionfish  
 SHEEP California sheephead  
 SKTCA California skate  
 CASTG California smoothtongue  
 TNGCA California touguefish  
 193 Canadian eelpout  
 RFCAN canary rockfish  
 CRBGN cancer genus  
 SMCAP capelin  
 CTSFM cat shark family  
 94 Catalina conger  
 RFCMA chameleon rockfish  
 CATCN channel catfish  
 616 cheekspot goby  
 163 chihuail  
 RFPEP chilipepper  
 RFCHN China rockfish  
 SALCK chinook salmon  
 MACPA chub (Pacific) mackerel  
 SALCM chum salmon  
 167 clingfish family  
 KLPMF clinid family  
 SOLCO C-O sole  
 SCCRG coastrange sculpin  
 CODFM cod family  
 SALCO coho salmon  
 FLNFM combtooth blenny family  
 CARPC common carp  
 RFCOP copper rockfish  
 326 coralline sculpin

Carcharhinus leucas  
 Auxis rochei  
 Sphoeroides annulatus  
 Pleuronectes isolepis  
 Stromateidae  
 Hemilepidotus papilio  
 Chaetodontidae  
 Scorpaenichthys marmoratus  
 Sebastes dalli  
 Clinocottus embryum  
 Amphistichus koelzi  
 Gymnura marmorata  
 Gobiesox rhesondon  
 Menticirrhus undulatus  
 Cypselurus californicus  
 Leuresthes tenuis  
 Paralichthys californicus  
 Diaphus theta  
 Fundulus parvipinnis  
 Synodus lunioceps  
 Gymnothorax mordax  
 Strongylura exilis  
 Scorpaena guttata  
 Semicossyphus pulcher  
 Raja inornata  
 Leuroglossus stilbius  
 Symphurus atricauda  
 Lycodes polaris  
 Sebastes pinniger  
 Cancer  
 Mallotus villosus  
 Scyllorhinidae  
 Gnathophipis catalinensis  
 Sebastes phillipsi  
 Ictalurus punctatus  
 Ilypnus gilberti  
 Bagre panamensis  
 Sebastes goodei  
 Sebastes nebulosus  
 Oncorhynchus tshawytscha  
 Scomber japonicus  
 Oncorhynchus keta  
 Gobiesocidae  
 Clinidae  
 Pleuronichthys coenosus  
 Cottus aleuticus  
 Gadidae  
 Oncorhynchus kisutch  
 Blenniidae  
 Cyprinus carpio  
 Sebastes caurinus  
 Arctidius corallinus

*Sorted by AFS Common Name*

CSHFM cow shark family  
 RFCOW cowcod  
 GUNCR crescent gunnel  
 329 crested sculpin  
 216 crestfish  
 KLPCR crevice kelpfish  
 SOLCF curlfin sole  
 CSKFM cusk eel family  
 SALCT cutthroat trout  
 148 daggertooth family  
 DAMFM damselfish family  
 RFDBL darkblotched rockfish  
 376 darter sculpin  
 584 daubed shanny  
 578 decorated warbonnet  
 ANCDB deepbody anchovy  
 DSSFM deepsea smelt family  
 SOLDS deepsea sole  
 564 deepwater blenny  
 129 delta smelt  
 SGDIA diamond stingray  
 SOLDT diamond turbot  
 158 diogenes lampfish  
 SHDFM dogfish shark family  
 152 dogtooth lampfish  
 SALDV Dolly Varden  
 DRADO dolphin  
 474 dolphin family  
 SOLDV Dover sole  
 DRGFM dragonfish family  
 DRMFM drum family  
 CRBDG dungeness crab  
 RFDUS dusky rockfish  
 SCDSK dusky sculpin  
 SHDKY dusky shark  
 SPDWF dwarf perch  
 293 dwarf red rockfish  
 593 dwarf wrymouth  
 EELOR eel order  
 ELPFM eelpout family  
 SOLEG English sole  
 627 escolar  
 SMEUL eulachon  
 369 eyeshade sculpin  
 SOLFT fantail sole  
 35 filetail cat shark  
 FTRIG finescale triggerfish  
 RFFLG flag rockfish  
 159 flashlightfish  
 FLTOR flatfish order  
 72 flathead skate  
 SOLFH flathead sole

Hexanchidae  
 Sebastes levis  
 Pholis laeta  
 Blepsias bilobus  
 Lophotus lacepedei  
 Gibbonsia montereyensis  
 Pleuronichthys decurrens  
 Ophidiidae  
 Oncorhynchus clarki  
 Anotopteridae  
 Pomacentridae  
 Sebastes crameri  
 Radulinus boleoides  
 Lumpenus maculatus  
 Chirolophis decoratus  
 Anchoa compressa  
 Bathylagidae  
 Embassichthys bathybius  
 Cryptotrema corallinum  
 Hypomesus transpacificus  
 Dasyatis dipterura  
 Hypopsetta guttulata  
 Diogenys lanternatus  
 Squalidae  
 Ceratoscopelus townsendi  
 Salvelinus malma  
 Coryphaena hippurus  
 Coryphaenidae  
 Microstomus pacificus  
 Stomiidae  
 Sciaenidae  
 Cancer magister  
 Sebastes ciliatus  
 Icelinus burchani  
 Carcharhinus obscurus  
 Micrometrus minimus  
 Sebastes rufinanus  
 Cryptacanthodes aleutensis  
 Anguilliformes  
 Zoarcidae  
 Pleuronectes vetulus  
 Lepidocybium flavobrunneum  
 Thaleichthys pacificus  
 Nautichthys pribilovius  
 Xystreurus liolepis  
 Parmatyrus xaniurus  
 Balistes polylepis  
 Sebastes rubrivinctus  
 Protomyctophum crockeri  
 Pleuronectiformes  
 Bathyraxia rosispinis  
 Hippoglossoides elassodon

*CRFS Sampler Manual*

107	flatiron herring	Harengula thrissina
372	fluffy sculpin	Oligocottus snyderi
FLYFM	flyingfish family	Exocoetidae
407	fourhorn poacher	Hypsagonus quadricornis
365	fourhorn sculpin	Myoxocephalus quadricornis
594	fourline snakeblenny	Eumesogrammus praecisus
RFFRK	freckled rockfish	Sebastes lentiginosus
MACFR	frigate mackerel	Auxis thazard
18	frill shark	Chlamydoselachus arguineus
FRSFM	frill shark family	Chlamydoselachidae
356	fringed sculpin	Icelinus fimbriatus
354	frogmouth sculpin	Icelinus oculatus
469	gaftopsail pompano	Trachinotus rhodopus
GARIB	garibaldi	Hypsypops rubicundus
427	gelatinous seasnail	Liparis fabricii
KLPGT	giant kelpfish	Heterostichus rostratus
GNTSB	giant seabass	Stereolepis gigas
592	giant wrymouth	Cryptacanthodes giganteus
GOBFM	goby family	Gobiidae
RFGOP	gopher rockfish	Sebastes carnatus
CRBGR	graceful rock crab	Cancer gracilis
RFGRS	grass rockfish	Sebastes rastrelliger
607	graveldiver	Scytalina cerdale
44	gray shark genus	Carcharhinus
SHGSM	gray smoothhound	Mustelus californicus
402	gray starsnout	Bathyagonus alascanus
SCGRT	great sculpin	Myoxocephalus polyacanthoceph
463	green jack	Caranx caballus
STGRN	green sturgeon	Acipenser medirostris
RFGBL	greenblotched rockfish	Sebastes rosenblatti
HALGL	Greenland halibut	Reinhardtius hippoglossoides
GRNFM	greenling family	Hexagrammidae
GRNGN	greenling genus	Hexagrammos
RFGRN	greenspotted rockfish	Sebastes chlorostictus
RFGST	greenstriped rockfish	Sebastes elongatus
437	grouper genus (epinephelus)	Epinephelus
GNTFM	grunt family	Haemulidae
SCGRU	grunt sculpin	Rhamphocottus richardsoni
453	Guadalupe cardinalfish	Apogon guadalupensis
GUIFM	guitarfish family	Rhinobatidae
GRPGF	gulf grouper	Mycteroperca jordani
SRAGU	gulf sierra	Scomberomorus concolor
GUNFM	gunnel family	Pholidae
HAGFM	hagfish order	Myxinidae
RFHBD	halfbanded rockfish	Sebastes semicinctus
202	halfbeak	Hyporhamphus unifasciatus
203	halfbeak	Hyporhamphus rosae
617	halfblind goby	Lethops connetens
HALFM	halfmoon	Medialuna californiensis
320	hamecon	Artediellus scaber
50	hammerhead shark family	Sphyrnidae
707	harlequin rockfish	Sebastes variegatus

*Sorted by AFS Common Name*

HERFM	herring family	Clupeidae
575	high cockscomb	Anoplarchus purpureus
RFHNC	honeycomb rockfish	Sebastes umbrosus
SHHRN	horn shark	Heterodontus francisci
SOLHT	hornyhead turbot	Pleuronichthys verticalis
SCILG	Irish lord genus	Hemilepidotus
562	island kelpfish	Alloclinus holderi
JACFM	jack family	Carangidae
JACMK	jack mackerel	Trachurus symmetricus
SMJAK	jacksmeat	Atherinopsis californiensis
FLRKM	Kamchatka flounder	Atheresthes evermanni
KAWAK	kawakawa	Euthynnus affinis
SBKLP	kelp bass	Paralabrax clathratus
172	kelp clingfish	Rimicola muscarum
GRNKP	kelp greenling	Hexagrammos decagrammus
606	kelp gunnel	Ulvicola santaerosa
SPKLP	kelp perch	Brachyistius frenatus
230	kelp pipefish	Syngnathus californiensis
RFKLP	kelp rockfish	Sebastes atrovirens
380	kelp sculpin	Sigmistes caulis
KOSAL	king-of-the-salmon	Trachipterus altivelis
LMPFM	lamprey family	Petromyzontidae
146	lancetfish family	Alepisauridae
151	lanternfish family	Myctophidae
390	lavender sculpin	Leiocottus hirundo
419	leatherfin lumpsucker	Eumicrotremus derjugini
465	leatherjacket	Oligoplites saurus
FLLFN	lefteye flounder family	Bothidae
SCLST	leister sculpin	Enophrys lucasi
SHLEP	leopard shark	Triakis semifasciata
572	lesser prickleback	Alectridium aurantiacum
169	lined clingfish	Gobiesox eugrammus
LNGCD	lingcod	Ophiodon elongatus
LZDFM	lizardfish family	Synodontidae
434	lobefin snailfish	Liparis greeni
656	longfin cigarfish	Cubiceps paradoxus
142	longfin dragonfish	Tactostoma macropus
599	longfin gunnel	Pholis clemensi
201	longfin halfbeak	Hemiramphus saltator
DABLF	longfin sanddab	Citharichthys xanthostigma
389	longfin sculpin	Jordani zonope
SMLGF	longfin smelt	Spirinchus thlaeichthys
680	longhead dab	Pleuronectes proboscideus
LJMUD	longjaw mudsucker	Gillichthys mirabilis
33	longnose cat shark	Apristurus kampae
LANLN	longnose lancetfish	Alepisaurus ferox
SKLGN	longnose skate	Raja rhina
581	longsnout prickleback	Lumpenella longirostris
CBFLS	longspine combfish	Zaniolepis latipinnis
RFLST	longspine thornyhead	Sebastolobus altivelis
LUVAR	louvar	Luvarus imperialis
SERLT	lumptail searobin	Prionotus stephanophrys

*CRFS Sampler Manual*

90	machete	Elops affinis
MACFM	mackerel family	Scombridae
SHMFM	mackerel shark family	Lamnidae
MANTA	manta	Manta birostris
82	manta family	Mobulidae
424	marbled snailfish	Liparis dennyi
458	marlin sucker	Remora osteochir
GRNMA	masked greenling	Hexagrammos octogrammus
576	matcheck warbonnet	Chirolophis tarsodes
495	Mexican goatfish	Mulloidichthys dentatus
160	Mexican lampfish	Triphoturus mexicanus
RFMEX	Mexican rockfish	Sebastes macdonaldi
MSCAD	Mexican scad	Decapterus scombrinus
106	middling thread herring	Opisthonema medirastre
MIDGN	midshipman genus	Porichthys
214	mirror dory	Zenopsis nebulosa
MOJFM	mojarra family	Gerreidae
SUNFM	mola family	Molidae
382	monacled sculpin	Synchirus gilli
PRKMK	monkeyface prickleback	Cebidichthys violaceus
333	mosshad sculpin	Clinocottus glopiceps
577	mosshad warbonnet	Chirolophis nugator
554	mussel blenny	Hypsoblennius jenkinsi
SHNTH	narrowtooth shark	Carcharhinus brachyurus
SMNGT	night smelt	Spirinchus starksi
224	ninespine stickleback	Pungitius pungitius
ANCNO	northern anchovy	Engraulis mordax
156	northern lampfish	Stenobranchius leucopsarus
150	northern pearleye	Benthalbella dentata
RNQNO	northern ronquil	Ronqilus jordani
SCNTH	northern sculpin	Icelinus borealis
397	northern spearnose poacher	Agonopsis vulsa
CLNGN	northern clingfish	Gobiesox maeandricus
579	nutcracker prickleback	Bryozoichthys lysimus
221	oarfish	Regalecus glesne
SUNOC	ocean sunfish	Mola mola
OCWHT	ocean whitefish	Caulolatilus princeps
699	oceanic puffer	Lagocephalus lagocephalus
628	oilfish	Ruvettus pretiosus
RFOLV	olive rockfish	Sebastes serranoides
KLPOF	onespot fringehead	Neoclinus urinotatus
OPAHS	opah	Lampris guttatus
OPALE	opaleye	Girella nigricans
COROM	orangemouth corvina	Cynoscion xanthulus
563	orangethroat pikeblenny	Chaenopsis alepidota
466	Pacific amberjack	Seriola colburni
SHANG	Pacific angel shark	Squatina californica
ARGNT	Pacific argentine	Argentina sialis
BARPA	Pacific barracuda	Sphyrna argentea
BONPA	Pacific bonito	Sarda chilensis
464	Pacific bumper	Chloroscombrus orqueta
701	Pacific burrfish	Chilomycterus affinis

*Sorted by AFS Common Name*

CODPA	Pacific cod	Gadus macrocephalus
CUTLP	Pacific cutlassfish	Trichiurus nitens
ERYPA	Pacific electric ray	Torpedo californica
531	Pacific fanfish	Pteraclis aesticola
623	Pacific fat sleeper	Dormitator latifrons
479	Pacific flagfin mojarra	Eucinostomus gracilis
709	Pacific flatnose	Antimora microlepis
706	Pacific grenadier	Coryphaenoides acrolepis
HAGPA	Pacific hagfish	Eptatretus stouti
PHAKE	Pacific hake	Merluccius productus
HALPA	Pacific halibut	Hippoglossus stenolepis
HERPA	Pacific herring	Clupea pallasii
LMPPA	Pacific lamprey	Entosphenus tridentatus
470	Pacific moonfish	Selene peruviana
FRPOP	Pacific ocean perch	Sebastes alutus
528	Pacific pomfret	Brama japonica
POMPA	Pacific pompano (butterfish)	Peprilus simillimus
483	Pacific porgy	Calamus brachysomus
SOLPA	Pacific sand lance	Ammodytes hexapterus
DABPA	Pacific sanddab	Citharichthys sordidus
PNDBA	Pacific sandfish	Trichodon trichodon
SARPA	Pacific sardine	Sardinops sagax
SAUPA	Pacific saury	Coloabis saira
630	Pacific scabbardfish	Lepidopus fitchi
231	Pacific seahorse	Hippocampus ingens
39	Pacific sharpnose shark	Rhizoprionodon longurio
SRAPA	Pacific sierra	Scomberomorus sierra
SHSLP	Pacific sleeper shark	Somniosus pacificus
97	Pacific snake eel	Ophichthus triserialis
SPDPA	Pacific spadefish	Chaetodipterus zonatus
420	Pacific spiny lumpsucker	Eumicrotremus orbis
SCPSH	Pacific staghorn sculpin	Leptocottus armatus
CODTC	Pacific tomcod	Microgadus proximus
143	Pacific viperfish	Chauliodus macouni
96	Pacific worm eel	Myrophis vafer
SCPAD	padded sculpin	Arctedius fenestralis
315	painted greenling	Oxylebius pictus
GRNPT	painted greenling	Oxylebius pictus
196	pale eelpout	Lycodes pallidus
189	pallid eelpout	Lycodapus mandibularis
468	paloma pompano	Trachinotus paitensis
155	patchwork lampfish	Notoscopelus resplendens
149	pearleye family	Scopelarchidae
504	pelagic armorhead	Pentaceros richardsoni
SGPEL	pelagic stingray	Dasyatis violacea
GUNPP	penpoint gunnel	Apodichthys flavidus
PERFM	perch family	Percidae
SOLPT	petrale sole	Eopsetta jordani
571	pighead prickleback	Acantholumpenus mackayi
SPPII	pile perch	Rhacochilus vacca
PILTF	pilotfish	Naucratus ductor
RFPNK	pink rockfish	Sebastes eos

*CRFS Sampler Manual*

SALPK	pink salmon	Oncorhynchus gorbuscha
SPPNK	pink seaperch	Zalemnius rosaceus
RFPKS	pinkrose rockfish	Sebastes simulator
154	pinpoint lampfish	Lampanyctus regalis
227	pipefish family	Sygnathidae
355	pit head sculpin	Icelinus cavifrons
362	plain sculpin	Myoxocephalus jaok
MIDPF	plainfin midshipman	Porichthys notatus
396	poacher family	Agonidae
194	polar eelpout	Lycodes turneri
423	polkadot snailfish	Liparis cyclostigma
POMFM	pomfret family	Bramidae
POMDO	pompano dolphin	Coryphaena equisetis
CTFPE	popeye catalufa	Pristigenys serrula
702	porcupinefish	Diodon hystrix
PRKFM	prickleback family	Stichaeidae
414	pricklebreast poacher	Stellerina xyosterna
SCPRK	prickly sculpin	Cottus asper
56	prickly shark	Echinorhinus cookei
432	prickly snailfish	Paraliparis deani
608	prowfish	Zaprora silenus
PUFFM	puffer family	Tetraodontidae
RFPST	Puget Sound rockfish	Sebastes emphaeus
324	Puget Sound sculpin	Ruscarius meanyi
410	pygmy poacher	Odontopyxis trispinosa
RFPYG	pygmy rockfish	Sebastes wilsoni
448	pygmy seabass	Serraniculus pumilio
QUEEN	queenfish	Seriphus politus
RFQIL	quillback rockfish	Sebastes maliger
569	quillfish	Ptilichthys goodei
RAGFS	ragfish	lcosteus aenagmaticus
23	ragged tooth shark	Odontaspis ferox
SCRRB	rainbow scorpionfish	Scorpaenodes xyris
SPRBW	rainbow seaperch	Hypsurus caryi
131	rainbow smelt	Osmerus mordax
SALRB	rainbow trout	Oncorhynchus mykiss
SCBRZ	razorback scabbardfish	Assurger anzac
183	red brotula	Brosmophycis marginata
604	red gunnel	Pholis schultzi
SCRIL	red Irish lord	Hemilepidotus hemilepidotus
CRBRR	red rock crab	Cancer productus
RFRBD	redbanded rockfish	Sebastes babcocki
RFRST	redstripe rockfish	Sebastes proriger
SPRTL	redtail surfperch	Amphistichus rhodotus
KLPRB	reef blenny	Paraclinus integripinnis
SPREF	reef perch	Micrometrus aurora
459	remora	Remora remora
REMFM	remora family	Echeneidae
SHRFM	requiem shark family	Carcharhinidae
SOLRX	rex sole	Errex zachirus
385	ribbed sculpin	Triglops pingeli
204	ribbon halfbeak	Euleptorhamphus viridis

*Sorted by AFS Common Name*

586	ribbon prickleback	Phytichthys chirus
422	ribbon snailfish	Liparis cyclopus
217	ribbonfish family	Trachipteridae
FLRFM	righteye flounder family	Pleuronectidae
430	ringtail snailfish	Liparis rutteri
GRNRK	rock greenling	Hexagrammos lagocephalus
PRKRK	rock prickleback	Xiphister mucosus
SOLRK	rock sole	Pleuronectes bilineatus
WRARK	rock wrasse	Halichoeres semicinctus
RFGEN	rockfish genus	Sebastes
ROCKH	rockhead	Bothragonus swani
BLNRP	rockpool blenny	Hypsoblennius gilberti
605	rockweed gunnel	Apodichthys fucorum
RNQFM	ronquil family	Bathymasteridae
473	roosterfish	Nematistius pectoralis
RFRTN	rosethorn rockfish	Sebastes helvomaculatus
RFROS	rosy rockfish	Sebastes rosaceus
SCRSL	rosy lip sculpin	Ascelichthys rhodorus
530	rough pomfret	Teractes asper
387	roughback sculpin	Chitonotus pugettensis
327	roughcheek sculpin	Ruscarius creaseri
RFRGH	roughey rockfish	Sebastes aleutianus
174	roughjaw frogfish	Antennarius avalonis
384	roughspine sculpin	Triglops macellus
74	rougtail skate	Raja trachura
HERRD	round herring	Etrumeus teres
SGRND	round stingray	Urolophus halleri
SPRUB	rubberlip seaperch	Rhacochilus toxotes
SABLE	sablefish	Anoplopoma fimbria
SABFM	sablefish family	Anoplopomatidae
GUNSB	saddleback gunnel	Pholis ornata
371	saddleback sculpin	Oligocottus rimensis
543	sailfin sandfish	Arctoscopus japonicus
SCSFN	sailfin sculpin	Nautichthys oculofasciatus
SAILF	sailfish	Istiophorus platypterus
SALEM	salema	Xenistius californiensis
SALFM	salmon family	Salmonidae
SALGN	salmon genus	Oncorhynchus spp.
SHSAL	salmon shark	Lamna ditropis
SOLSD	sand sole	Psettichthys melanostictus
SBGEN	sandbass genus	Paralabrax
DABGN	sanddab genus	Citharichthys
SNDFM	sandfish family	Trichodontidae
KLPSF	sarcastic fringehead	Neoclinus blanchardi
SARGO	sargo	Anisotremus davidsoni
SCSCL	scaled sculpin	Archaulus biserialus
220	scalloped ribbonfish	Zu cristatus
SCSLH	scalyhead sculpin	Artedius harringtoni
560	scarlet kelpfish	Gibbonsia erythra
SCSCT	scissortail sculpin	Triglops forficata
SCRFM	scorpionfish family	Scorpaenidae
SCFAM	sculpin family	Cottidae

*CRFS Sampler Manual*

503	scythe butterflyfish	Chaetodon falcifer
SBFAM	sea bass family	Serranidae
SCBFM	sea chub family	Kyphosidae
SALTR	sea run trouts	
548	searcher	Bathymaster signatus
298	searobin family	Triglidae
708	semaphore rockfish	Sebastes melanosema
SENOB	senorita	Oxyjulis californica
SHSEV	seven gill shark	Notorynchus maculatus
619	shadow goby	Quietula ycauda
205	sharpchin flyingfish	Fodiator acutus
RFSCN	sharpchin rockfish	Sebastes zacentrus
SCSHN	sharpnose sculpin	Clinocottus acuticeps
SPSHN	sharpnose seaperch	Phanerodon atripes
SPSHR	shiner perch	Cymatogaster aggregata
RFSHB	shortbelly rockfish	Sebastes jordani
654	shortbill spearfish	Tetrapturus angustirostris
CORSF	shortfin corvina	Cynoscion parvipinnis
190	shortfin eelpout	Lycodes brevipes
SHSMK	shortfin mako shark	Isurus oxyrinchus
367	shorthorn sculpin	Myoxocephalus scorpius
RFSRK	shortraker rockfish	Sebastes borealis
CBFSS	shortspine combfish	Zaniolepis frenata
RFSST	shortspine thornyhead	Sebastolobus alascanus
GUISN	shovelnose guitarfish	Rhinobatos productus
429	showy snailfish	Liparis pulchellus
195	shulupaoluk	Lycodes jugoriscus
532	sickle pomfret	Taractichthys steindachneri
SHSSM	sicklefin smoothhound	Mustelus lunulatus
330	silver spotted sculpin	Blepsias cirrhosus
SPSIL	silver surfperch	Hyperprosopon ellipticum
RFSLG	silvergray rockfish	Sebastes brevispinis
SVRFM	silverside family	Atherinidae
SHSIX	six gill shark	Hexanchus griseus
RAJOR	skate and ray order	Rajiformes
SKFAM	skate family	Rajidae
314	skilfish	Erilepis zonifer
SKBGN	skipback genus	Euthynnus
TNASJ	skipjack tuna	Katsuwonus pelamis
173	slender clingfish	Rimicola eigenmanni
574	slender cockscomb	Anoplarchus insignis
582	slender eelblenny	Lumpenus fabricii
705	slender mola	Ranzania laevis
100	slender snake eel	Nemichthys scolopaceus
226	slender snipefish	Macrorhamphosus gracilis
SOLSL	slender sole	Eopsetta exilis
TNASL	slender tuna	Allothenus fallai
375	slim sculpin	Radulinus asprellus
426	slipskin snailfish	Liparis fucensis
112	slough anchovy	Anchoa delicatissima
SQTSE	smalleye squaretail	Tetragonurus cuvieri
547	smallmouth ronquil	Bathymaster leurolepis

*Sorted by AFS Common Name*

SMFAM	smelt family	Osmeridae
381	smithi sculpin	Sigmistes smithi
399	smooth alligatorfish	Anoplagonus inermis
52	smooth hammerhead shark	Sphyrna zygaena
416	smooth lumpsucker	Aptocyclus ventricosus
550	smooth stargazer	Kathetostoma avaruncus
377	smoothgum sculpin	Radulinus vinculus
323	smoothhead sculpin	Artedius lateralis
SHSGN	smoothhound genus	Mustelus
85	smoohtail mobula	Mobula thurstoni
415	snailfish family	Cyclopteridae
SELFM	snake eel family	Ophichthidae
626	snake mackerel	Gempylus serpens
625	snake mackerel family	Trichiuridae
PRKSN	snake prickleback	Lumpenus sagitta
99	snipe eel family	Nemichthyidae
439	snowy grouper	Epinephelus niveatus
392	snubnose sculpin	Orthoropias triacis
SALSE	sockeye salmon	Oncorhynchus nerka
395	soft sculpin	Psychrolutes sigalutes
SHFIN	soupin shark	Galeorhinus zyopterus
398	southern spearnose poacher	Agonopsis sterletus
317	spatulate sculpin	Icelus spatula
460	spearfish remora	Remora brachyptera
RFSPK	speckled rockfish	Sebastes ovalis
DABSP	speckled sanddab	Citharichthys stigmatos
MIDSP	specklefin midshipman	Porichthys myriaster
386	spectacled sculpin	Triglops scepticus
374	spineless sculpin	Phalloccottus obtusus
84	spinetail mobula	Mobula japanica
BOXSP	spiny boxfish	Ostracion diaphanum
SHSDG	spiny dogfish shark	Squalus acanthias
LOBSP	lobster, spiny	Panulirus interruptus
428	spiny snailfish	Liparis mucosus
403	spinycheck starsnout	Bathyagonus infraspinalis
338	spinyhead sculpin	Dasycottus setiger
388	spinynose sculpin	Asemichthys taylori
RFSNS	splitnose rockfish	Sebastes diploproa
300	splitnose searobin	Bellator xenisma
442	splittail bass	Hemanthias signifer
139	spookfish family	Opisthoproctidae
CRKSF	spotfin croaker	Roncador stearnsi
478	spotfin mojarra	Eucinostomus argenteus
SCSPT	spotfin sculpin	Icelinus tenuis
SPSPF	spotfin surfperch	Hyperprosopon anale
175	spotted batfish	Zalieutes elater
438	spotted cabrilla	Epinephelus analogus
184	spotted cusk eel	Chilara taylori
KLPSP	spotted kelpfish	Gibbonsia elegans
RATFS	spotted ratfish	Hydrolagus coliei
SBSPT	spotted sandbass	Paralabrax maculatofascia
421	spotted snailfish	Liparis callyodon

*CRFS Sampler Manual*

SOLST	spotted turbot	Pleuronichthys ritteri
RFSQS	squarespot rockfish	Sebastes hopkinsi
706	squid	Cephalopoda
FLRST	starry flounder	Platichthys stellatus
RFSTA	starry rockfish	Sebastes constellatus
SKSTY	starry skate	Raja stellulata
SKBFM	stickleback family	Gasterosteidae
SGFAM	stingray family	Dasyatidae
SGGEN	stingray genus	Dasyatis spp.
600	stippled gunnel	Rhodymenichthys dolichogaster
595	stone cockscomb	Alectrias alectrolophus
585	stout eelblenny	Lumpenus medius
STBAS	striped bass	Morone saxatilis
KLPST	striped kelpfish	Gibbonsia metzi
MARST	striped marlin	Tetrapturus audax
STMUL	striped mullet	Mugil cephalus
SPSTR	striped seaperch	Embiotoca lateralis
RFSTR	stripetail rockfish	Sebastes saxicola
STGEN	sturgeon genus	Acipenser
SNFFM	sunfish family	Centrarchidae
SMSUR	surf smelt	Hypomesus pretiosus
SPFAM	surfperch family	Embiotocidae
SHSWL	swell shark	Cephaloscyllium ventriosum
SRDFS	swordfish	Xiphias gladius
RFSDS	swordspine rockfish	Sebastes ensifer
393	tadpole sculpin	Psychrolutes paradoxus
431	tadpole snailfish	Nectoliparis pelagicus
219	tapertail ribbonfish	Trachipterus fukuzaki
THRBK	thornback	Platyrhinoidis triseriata
373	thornback sculpin	Paricelinus hopliticus
SBTHF	threadfin bass	Pronotogrammus multifasciatus
535	threadfin family	Polynemidae
SCTRF	threadfin sculpin	Icelinus filamentosus
502	threeband butterflyfish	Chaetodon humeralis
SKBTS	threespine stickleback	Gasterosteus aculeatus
SHTHR	thresher shark	Alopias vulpinus
SCTDP	tidepool sculpin	Oligocottus maculosus
425	tidepool snailfish	Liparis florum
622	tidewater goby	Eucyclogobius newberryi
RFTIG	tiger rockfish	Sebastes nigrocinctus
SHTIG	tiger shark	Galeocerdo cuvieri
SMTOP	topsmelt	Atherinops affinis
RFTRE	treefish	Sebastes serriceps
620	trident goby	Tridentiger trigonocephalu
580	trident prickleback	Gymnoclinus cristulatus
176	triplewart seadevil	Cryptopsaras couesi
5	true crabs	Brachyuratribe
TBESN	tube snout	Aulorhynchus flavidus
411	tubenose poacher	Pallasina barbata
TNASG	tunas (non-mackerel)	
316	twohorn sculpin	
SHUNI	unidentified (sharks)	Icelus bicornis

*Sorted by AFS Common Name*

UNISF	unidentified (surface fish)	Sebastes miniatus
UNIFH	unidentified fish	Theragra chalcogramma
RFVER	vermilion rockfish	Hyperprosopon argenteum
POLWE	walleye pollock	Myoxocephalus niger
SPWAL	walleye surfperch	Ocella verrucosa
363	warhead sculpin	Lycodes palearis
409	warty poacher	Cynoscion
192	wattled eelpout	Rhincodon typus
WEKFS	weakfishes	Remora australis
22	whale shark	Genyonemus lineatus
REMWS	whalesucker	Atractoscion nobilis
CROWT	white croaker	Phanerodon furcatus
SBWHT	white seabass	Carcharodon carcharias
SPWHT	white seaperch	Acipenser transmontanus
SHWHT	white shark	Allosmerus elongatus
STWHT	white sturgeon	Poroclinus rothrocki
SMWTB	whitebait smelt	Sebastes vexillaris
588	whitebarred prickleback	Hexagrammos stelleri
RFWTB	whitebelly rockfish	Sebastes entomelas
GRNWT	whitespotted greenling	Anarrhichthys ocellatus
RFWID	widow rockfish	Clinocottus analis
WOLFE	wolf-eel	Labridae
SCWOL	wolly sculpin	Allolumpenus hypochrcmus
WRAFM	wrasse family	Polydactylus opercularis
573	Y prickleback	Hemilepidotus jordani
537	yellow bobo	Ophichthus zophochir
347	yellow Irish lord	Icelinus quadriseriatus
SELYL	yellow snake eel	Sebastes ruberrimus
357	yellowchin sculpin	Umbrina roncadore
RFYFY	yelloweye rockfish	Neoclinus stephensae
CRKYF	yellowfin croaker	Acanthogobius flavimanus
566	yellowfin fringehead	Pleuronectes asper
BOGYL	yellowfin goby	Thunnus albacares
SOLYF	yellowfin sole	Sebastes reedi
TNAYF	yellowfin tuna	Seriola lalandei
RFYMN	yellowmouth rockfish	Sebastes flavidus
YELTL	yellowtail	Lythrypnus zebra
RFYTL	yellowtail rockfish	Hermosilla azurea
618	zebra goby	
PERZB	zebra perch	

## OTHER CODES

### PR1 Non-Fishing Codes

Target	Activity
NFREF	NF recreational fishing (no wet gear time)
NFMAT	NF boat maintenance (recreational boat)
NFSHL	NF shellfish (recreational only)
NFUNI	NF unidentified (not determined)
NFCRU	NF cruise (recreational boating)
NFOTH	NF other (explain commercial activity)
NFENF	NF enforcement (public agency)
NFCOM	NF commercial fishery (all harvests, CPFV)
NFRES	NF research (public agency)
NFBIR	NF bird watching
NFWHA	NF whale watching
NFDIV	NF diving (recreational only)
NFBAS	NF burial at sea
NFPUL	NF removing boat from slip, no trip
NFHNT	NF gun hunting
NFSQU	NF squid only trip

### California Island Codes / Saltwater Cutoffs

NAME	ISLAND
Coronado	1
San Clemente	2
Catalina	3
Snata Barbara	4
San Nicolas	5
Anacapa	6
Santa Cruz	7
Santa Rosa	8
San Miguel	9
Farallon	10

County	River	Saltwater Cutoff Point
Del Norte	Smith R.	1/4 way between mouth and 101
Humboldt	Mad R.	1/4 way between mouth and 101
	Eel R.	Upper end Cockrobin Island
	Redwood Creek	1/4 way between mouth and 101
Mendocino	Ten Mile R.	Old dock, 100 yds. up from 101
	Noyo R.	End of Dolphin Cove Marina
	Big River	Mid - 2nd turn upstream
	Albion R.	Upper dock
	Navaro R.	Hwy 1 Bridge
Sonoma	Petaluma R.	Highway 37 Bridge
	Coast rivers	Highway 1 bridges
Napa	Napa River	Highway 37 Bridge
Solano	Sacramento R.	Carquinez Bridge
Contra Costa	Sacramento R.	Carquinez Bridge
San Mateo	Coast rivers	Highway 1 bridges
Monterey	Elkhorn Slough	Highway 1 bridge
Los Angeles	San Gabriel River	Pacific Cosat Highway bridge

### OSP PR1 Port Codes

CRFS PR1 SITES				OFF-SITE COUNTS		
CNT Y	SITE	NAME	OSP	CNT Y	SITE	NAME
1	100	BERKELEY	BER	1	107	EMERYVILLE LR
45	100	FORT BRAGG - NOYO	FTB	45	104	SOUTH HARBOR DISTRICT LR
23	103	FIELDS LANDING	FLD	OFFSITE MISSED BOATS ONLY		
53	104	MOSS LANDING LR	MOS	53	105	WOODWARD LR
53	107	MONTEREY HARBOR LR	MOH	OFFSITE MISSED BOATS ONLY		
81	100	PRINCETON	PRI	OFFSITE MISSED BOATS ONLY		
87	101	SANTA CRUZ	SCR	OFFSITE MISSED BOATS ONLY		
97	100	BODEGA	BOD	97	105	DORAN LR
15	100	Crescent City	CRL			
15	101	Crescent City Inner Boat Basin	CRD			
23	102	Trinidad Docks / Pier	TRD			
23	102	Trinidad Hoist / Harbor	TRH			
23	106	Shelter Cove	SHC			
23	107	Eureka	EUR			

41	100	Sausalito	SAU			
53	104	Moss Landing	MOS			
79	100	Morro Bay	MOR			
79	101	Avila	AVI			
111	103	Ventura Launch Ramp	VEN			
111	104	Channel Islands Launch Ramp	OXN			
83	400	Santa Barbara Launch Ramp	SBA			

**CRFS Priority Species**

Overfished Species	
canary rockfish	coho salmon
cowcod	lingcod
widow rockfish	yelloweye rockfish
bocaccio	black rockfish
Quota Managed Species	
black-and-yellow rockfish	blue rockfish
cabezon	California scorpionfish
California sheephead	Chinook Salmon
gopher rockfish	grass rockfish
greenlings (Hexagrammos spp)	kelp rockfish
Protected Species	
Garibaldi	giant sea bass
gulf grouper	broomtail grouper
Sport Managed Species	
barracuda	barred sand bass
barred surfperch	bigeye tuna
black perch	blue shark
bluefin tuna	calico surfperch
California corbina	California halibut
dorado	kelp bass
leopard shark	mako shark
Pacific bonito	pile perch
rubberlip surfperch	shiner surfperch
skipjack	spotfin croaker
spotted sand bass	striped bass
striped marlin	sturegon
swordfish	thresher shark (Alopias spp.)
walleye surfperch	white seabass
white surfperch	yellowfin croaker
yellowfin tuna	yellowtail

**CDFG Landing Size Records**

Specie	Weight (kg)	Total Length (mm)
Bass, Barred Sand	6.0	692
Bass, Spotted Sand	3.1	406
Corbina, California	3.0	635
Croaker, Yellowfin	1.0	451
Dolphinfish	29.9	1676
Eel, Monkeyfaced	1.8	610
Flounder, Starry	5.1	724
Halibut, California	26.6	1321
Jacksmelt	0.7	457
Lingcod	25.4	1270
Mackerel, Jack	2.5	660
Mackerel, Pacific (Chub)	1.1	445
Marlin, Striped	153.8	2994
Opah	73.9	1308
Rockfish, Black	4.1	605
Rockfish, Blue	1.8	495
Rockfish, Bocaccio	7.9	866
Rockfish, Bronzespotted	6.6	729
Rockfish, China	1.5	432
Rockfish, Copper	3.8	559
Rockfish, Cowcod	9.9	866
Rockfish, Olive	2.7	584
Rockfish, Vermillion	6.6	711
Rockfish, Yelloweye	8.2	719
Rockfish, Yellowtail	2.5	551
Salmon, Chinook (King)	23.7	1219
Seaperch, Rubberlip	1.9	470
Surfperch, Barred	1.9	454
Surfperch, Barred	1.9	432
Shark, Leopard	18.4	1524
Shark, Sevengill	125.2	2946
Shark, Shortfin Mako	447.2	3200
Sheephead, California	18.3	965
Tuna, Albacore	40.8	1260
Tuna, Bigeye	108.9	1829
Tuna, Yellowfin	108.4	1930
Whitefish, Ocean	6.2	734
White, Seabass	36.3	1607
Yellowtail	28.6	1422

**County Codes**

County	Code	Coastal	SF bay
Alameda	ALA		X
Alpine	ALP		
Amador	AMA		
Butte	BUT		
Calaveras	CAL		
Colusa	COL		
Contra Costa	CON		X
Del Norte	DEL	X	
El Dorado	ELD		
Fresno	FRE		
Glenn	GLE		
Humboldt	HUM	X	
Imperial	IMP		
Inyo	INY		
Kern	KER		
Kings	KIN		
Lake	LAK		
Lassen	LAS		
Los Angeles	LOS	X	
Madera	MAD		
Marin	MAR	X	X
Mariposa	MRP		
Mendocino	MEN	X	
Merced	MER		
Modoc	MOD		
Mono	MNO		
Monterey	MON	X	
Napa	NAP		X
Nevada	NEV		
Orange	ORA	X	
Placer	PLA		
Plumas	PLU		
Riverside	RIV		
Sacramento	SAC		
San Benito	SBT		
San Bernardino	SBD		
San Diego	SDG	X	
San Francisco	SNF	X	X
San Joaquin	SJO		
San Luis Obispo	SLO	X	
San Mateo	SMA	X	X
Santa Barbara	SBR	X	
Santa Clara	SCL		X
Santa Cruz	SCR	X	

Shasta	SHA		
Sierra	SIE		
Siskiyou	SIS		
Solano	SOL		X
Sonoma	SON	X	
Stanislaus	STA		
Sutter	SUT		
Tehama	THE		
Trinity	TRI		
Tulare	TUL		
Tuolumne	TUO		
Ventura	VEN	X	
Yolo	YOL		
Yuba	YUB		

Out of state - record state postal code, i.e. AZ = Arizona.

Don't know - record state postal code

**State Postal Codes**

State	Postal Code
ALABAMA	AL
ALASKA	AK
AMERICAN SAMOA	AS
ARIZONA	AZ
ARKANSAS	AR
CALIFORNIA	CA
COLORADO	CO
CONNECTICUT	CT
DELAWARE	DE
DISTRICT OF COLUMBIA	DC
MICRONESIA	FM
FLORIDA	FL
GEORGIA	GA
GUAM	GU
HAWAII	HI
IDAHO	ID
ILLINOIS	IL
INDIANA	IN
IOWA	IA
KANSAS	KS
KENTUCKY	KY
LOUISIANA	LA
MAINE	ME
MARSHALL ISLANDS	MH
MARYLAND	MD
MASSACHUSETTS	MA
MICHIGAN	MI
MINNESOTA	MN
MISSISSIPPI	MS
MISSOURI	MO

MONTANA	MT
NEBRASKA	NE
NEVADA	NV
NEW HAMPSHIRE	NH
NEW JERSEY	NJ
NEW MEXICO	NM
NEW YORK	NY
NORTH CAROLINA	NC
NORTH DAKOTA	ND
N. MARIANA ISLANDS	MP
OHIO	OH
OKLAHOMA	OK
OREGON	OR
PALAU	PW
PENNSYLVANIA	PA
PUERTO RICO	PR
RHODE ISLAND	RI
SOUTH CAROLINA	SC
SOUTH DAKOTA	SD
TENNESSEE	TN
TEXAS	TX
UTAH	UT
VERMONT	VT
VIRGIN ISLANDS	VI
VIRGINIA	VA
WASHINGTON	WA
WEST VIRGINIA	WV
WISCONSIN	WI
WYOMING	WY

**Alpha Foreign Country Codes**

Code	Foreign Country
FAC	Ascension Island
FAD	Andorra
FAE	United Arab Emirates
FAF	Afghanistan
FAG	Antigua and Barbuda
FAI	Anguilla
FAL	Albania
FAM	Armenia
FAN	Netherlands Antilles
FAO	Angola
FAQ	Antarctica
FAR	Argentina
FAS	American Samoa
FAT	Austria
FAU	Australia
FAW	Aruba

FAZ	Azerbaijan
FBA	Bosnia and Herzegovina
FBB	Barbados
FBD	Bangladesh
FBE	Belgium
FBF	Burkina Faso
FBG	Bulgaria
FBH	Bahrain
FBI	Burundi
FBJ	Benin
FBM	Bermuda
FBN	Brunei Darussalam
FBO	Bolivia
FBR	Brazil
FBS	Bahamas
FBT	Bhutan
FBV	Bouvet Island
FBW	Botswana
FBY	Belarus
FBZ	Belize
FCA	Canada
FCC	Cocos (Keeling) Islands
FCD	Democratic Republic of the Congo
FCF	Central African Republic
FCG	Republic of Congo
FCH	Switzerland
FCI	Cote d'Ivoire
FCK	Cook Islands
FCL	Chile
FCM	Cameroon
FCN	China
FCO	Colombia
FCR	Costa Rica
FCU	Cuba
FCV	Cap Verde
FCX	Christmas Island
FCY	Cyprus
FCZ	Czech Republic
FDE	Germany
FDJ	Djibouti
FDK	Denmark
FDM	Dominica
FDO	Dominican Republic
FDZ	Algeria
FEC	Ecuador
FEE	Estonia
FEG	Egypt
FEH	Western Sahara
FER	Eritrea
FES	Spain

FET	Ethiopia
FFI	Finland
FFJ	Fiji
FFK	Falkland Islands (Malvina)
FFM	Federal State of Micronesia
FFO	Faroe Islands
FFR	France
FGA	Gabon
FGD	Grenada
FGE	Georgia
FGF	French Guiana
FGG	Guernsey
FGH	Ghana
FGI	Gibraltar
FGL	Greenland
FGM	Gambia
FGN	Guinea
FGP	Guadeloupe
FGQ	Equatorial Guinea
FGR	Greece
FGS	South Georgia and the South Sandwich Islands
FGT	Guatemala
FGU	Guam
FGW	Guinea-Bissau
FGY	Guyana
FHK	Hong Kong
FHM	Heard and McDonald Islands
FHN	Honduras
FHR	Croatia/Hrvatska
FHT	Haiti
FHU	Hungary
FID	Indonesia
FIE	Ireland
FIL	Israel
FIM	Isle of Man
FIN	India
FIO	British Indian Ocean Territory
FIQ	Iraq
FIR	Iran (Islamic Republic of)
FIS	Iceland
FIT	Italy
FJE	Jersey
FJM	Jamaica
FJO	Jordan
FJP	Japan
FKE	Kenya
FKG	Kyrgyzstan
FKH	Cambodia
FKI	Kiribati

FKM	Comoros
FKN	Saint Kitts and Nevis
FKP	Democratic Peoples Republic Korea
FKR	Republic of Korea
FKW	Kuwait
FKY	Cayman Islands
FKZ	Kazakhstan
FLA	Lao People's Democratic Republic
FLB	Lebanon
FLC	Saint Lucia
FLI	Liechtenstein
FLK	Sri Lanka
FLR	Liberia
FLS	Lesotho
FLT	Lithuania
FLU	Luxembourg
FLV	Latvia
FLY	Libyan Arab Jamahiriya
FMA	Morocco
FMC	Monaco
FMD	Republic of Moldova
FMG	Madagascar
FMH	Marshall Islands
FMK	Former Yugoslav Republic Macedonia
FML	Mali
FMM	Myanmar
FMN	Mongolia
FMO	Macau
FMP	Northern Mariana Islands
FMQ	Martinique
FMR	Mauritania
FMS	Montserrat
FMT	Malta
FMU	Mauritius
FMV	Maldives
FMW	Malawi
FMX	Mexico
FMY	Malaysia
FMZ	Mozambique
FNA	Namibia
FNC	New Caledonia
FNE	Niger
FNF	Norfolk Island
FNG	Nigeria
FNI	Nicaragua
FNL	Netherlands
FNO	Norway
FNP	Nepal
FNR	Nauru
FNU	Niue

FNZ	New Zealand
FOM	Oman
FPA	Panama
FPE	Peru
FPF	French Polynesia
FPG	Papua New Guinea
FPH	Philippines
FPK	Pakistan
FPL	Poland
FPM	St. Pierre and Miquelon
FPN	Pitcairn Island
FPR	Puerto Rico
FPS	Palestinian Territories
FPT	Portugal
FPW	Palau
FPY	Paraguay
FQA	Qatar
FRE	Reunion Island
FRO	Romania
FRU	Russian Federation
FRW	Rwanda
FSA	Saudi Arabia
FSB	Solomon Islands
FSC	Seychelles
FSD	Sudan
FSE	Sweden
FSG	Singapore
FSH	St. Helena
FSI	Slovenia
FSJ	Svalbard and Jan Mayen Islands
FSK	Slovak Republic
FSL	Sierra Leone
FSM	San Marino
FSN	Senegal
FSO	Somalia
FSR	Suriname
FST	Sao Tome and Principe
FSV	El Salvador
FSY	Syrian Arab Republic
FSZ	Swaziland
FTC	Turks and Caicos Islands
FTD	Chad
FTF	French Southern Territories
FTG	Togo
FTH	Thailand
FTJ	Tajikistan
FTK	Tokelau
FTM	Turkmenistan
FTN	Tunisia

FTO	Tonga
FTP	East Timor
FTR	Turkey
FTT	Trinidad and Tobago
FTV	Tuvalu
FTW	Taiwan
FTZ	Tanzania
FUA	Ukraine
FUG	Uganda
FUK	United Kingdom
FUM	US Minor Outlying Islands
FUS	United States
FUY	Uruguay
FUZ	Uzbekistan
FVA	Holy See (City Vatican State)
FVC	Saint Vincent and the Grenadines
FVE	Venezuela
FVG	Virgin Islands (British)
FVI	Virgin Islands (USA)
FVN	Vietnam
FVU	Vanuatu
FWF	Wallis and Futuna Islands
FWS	Western Samoa
FYE	Yemen
FYT	Mayotte
FYU	Yugoslavia
FZA	South Africa
FZM	Zambia
FZW	Zimbabwe

**Angler Slang Names**

<b>common</b>	<b>sci_name</b>	<b>slang</b>
Pacific mackerel	<i>Scomber japonicus</i>	American mackerel
bronzespotted rockfish	<i>Sebastes gilli</i>	Arkansas red
Pacific pompano	<i>Peprilus simillimus</i>	BC
Pacific pompano	<i>Peprilus simillimus</i>	Baja CA to Fraser River
speckled rockfish	<i>Sebastes ovalis</i>	Belinda cod (So. of Santa Moni
Pacific mackerel	<i>Scomber japonicus</i>	Big Mac
bonito	<i>Sarda chiliensis</i>	Bone head
northern anchovy	<i>Engraulis mordax</i>	CA anchoveta
northern anchovy	<i>Engraulis mordax</i>	CA anchovy
Pacific bonito	<i>Sarda chilensis</i>	CA bonito
Pacific hake	<i>Merluccius productus</i>	CA hake
calico surfperch	<i>Amphistichus koelzi</i>	CA porgie
tomcod	<i>Microgadus proximus</i>	CA tomcod
Pacific angel shark	<i>Squalina californica</i>	California angel shark
giant sea bass	<i>Stereolepis gigas</i>	California black sea bass
spiny dogfish shark	<i>Squalus acanthias</i>	California dogfish
California Halibut	<i>Paralichthys californicus</i>	California flounder
starry flounder	<i>Platichthys stellatus</i>	California flounder
halfmoon	<i>Medialuna californiensis</i>	California halfmoon
horn shark	<i>Heterodontus francisci</i>	California horn shark
giant sea bass	<i>Stereolepis gigas</i>	California jewfish
corbina	<i>Menticirrhus undulatus</i>	California king croaker
monkeyface prickleback	<i>Cebidichthys violaceus</i>	California monkeyface eel
opaleye	<i>Girella nigricans</i>	California opaleye
sheephead	<i>Semicossyphus pulcher</i>	California redfish
barred sand bass	<i>Paralabrax nebulifer</i>	California rock bass
salema	<i>Xenistius californiensis</i>	California salema
barred sand bass	<i>Paralabrax nebulifer</i>	California sandbass
sargo	<i>Anisotremus davidsoni</i>	California sargo
white croaker	<i>Genyonemus lineatus</i>	California silver bass
petrale sole	<i>Eopsetta jordani</i>	California sole
swell shark	<i>Cephaloscyllium ventriosum</i>	California swell shark
thornback	<i>Platyrrhinoidis triseriata</i>	California thornback
corbina	<i>Menticirrhus undulatus</i>	California whiting
rock wrasse	<i>Halichoeres semicinctus</i>	California wrasse
yellowtail	<i>Seriola lalandi</i>	California yellowtail
halfmoon	<i>Medialuna californiensis</i>	Catalina blue
halfmoon	<i>Medialuna californiensis</i>	Catalina blue perch
yellowfin croaker	<i>Umbrina roncadore</i>	Catalina croaker
opaleye	<i>Girella nigricans</i>	Catalina perch
halfmoon	<i>Medialuna californiensis</i>	Catalina perch blue bass
speckled sanddab	<i>Citharichthys stigmaeus</i>	Catalina sanddab
Pacific sanddab	<i>Citharichthys sordidus</i>	Catalina sanddab sand dab
sargo	<i>Anisotremus davidsoni</i>	China croaker
walleye surfperch	<i>Hyperprosopon argenteum</i>	China pompano
black croaker	<i>Cheilotrema saturnum</i>	Chinese croaker

# *CRFS Sampler Manual*

Chinook salmon	Oncorhynchus tshawytscha	Columbia river salmon
white sturgeon	Acipenser transmontanus	Columbia sturgeon
Pacific herring	Clupea pallasii	Easter herring
Pacific bonito	Sarda chilensis	Eastern Pacific bonito
petrale sole	Eopsetta jordani	English sole
bank rockfish	Sebastes rufus	Florida
bank rockfish	Sebastes rufus	Florida red
albacore	Thunnus alalunga	German
speckled rockfish	Sebastes ovalis	J.W. (No. of Pt. Hueneme)
opah	Lampris regius	Jerusalem haddock
petrale sole	Eopsetta jordani	Jordan's flounder
bank rockfish	Sebastes rufus	Louisiana ridge runner
Pacific mackerel	Scomber japonicus	Mac
Pacific mackerel	Scomber japonicus	Mac Attack or Mac Trash
Pacific pompano	Peprilus simillimus	Magdalena Bay
ocean sunfish	Mola Mola	Mola
California Halibut	Paralichthys californicus	Monterey halibut
California Halibut	Paralichthys californicus	Monterey halibut
redtail surfperch	Amphistichus rhodotus	OR porgie
white sturgeon	Acipenser transmontanus	Oregon sturgeon
northern anchovy	Engraulis mordax	Pacific anchovy
rock greenling	Hexagrammos lagocephalus	Pacific red rock trout
Coho salmon	Oncorhynchus kisutch	Pacific salmon
white sturgeon	Acipenser transmontanus	Pacific sturgeon
surfmelt	Hypomesus pretiosus	Pacific surf smelt
white surfperch	Phanerodon furcatus	Pacific white perch
Pacific hake	Merluccius productus	Pacific whiting
yellowfin tuna	Thunnus albacares	Pacific yellowfin
white croaker	Genyonemus lineatus	Pasadena
white croaker	Genyonemus lineatus	Pasadena trout
horn shark	Heterodontus francisci	Port Jackson shark
Chinook salmon	Oncorhynchus tshawytscha	Sacramento river salmon
white sturgeon	Acipenser transmontanus	Sacramento sturgeon
topsmelt	Atherinops affinis	San Francisco topsmelt
bigmouth sole	Hippoglossina stomata	Southern CA
jack mackerel	Trachurus symmetricus	Spaniard
jack mackerel	Trachurus symmetricus	Spanish mackerel
pygmy rockfish	Sebastes wilsoni	Wilson's rockfish
albacore	Thunnus alalunga	abrego
yellowtail	Seriola lalandi	ahi
California Halibut	Paralichthys californicus	alabato
dusky rockfish	Sebastes ciliatus	alaska black rockfish
bigeye tuna	Thunnus obesus	albacore
swordfish	Xiphus gladius	albacore
albacore	Thunnus alalunga	albie
rubberlip seaperch	Rhacochilus toxotes	alfione
albacore	Thunnus alalunga	aliconghi
California barracuda	Sphyrnaea argenta	alligator gar
yellowfin tuna	Thunnus albacares	allison tuna
yellowtail	Seriola lalandi	amber fish

# *Common*

yellowtail  
 bocaccio  
 longspine thornyhead  
 skipjack  
 Mexican rockfish  
 Mexican rockfish  
 bronzespotted rockfish  
 Mexican rockfish  
 Coho salmon  
 yellowfin tuna  
 rosy rockfish  
 speckled rockfish  
 starry rockfish  
 swell shark  
 redbanded rockfish  
 redbanded rockfish  
 splitnose rockfish  
 thornback  
 bank rockfish  
 speckled rockfish  
 speckled rockfish  
 white croaker  
 flag rockfish  
 redbanded rockfish  
 treefish  
 copper rockfish  
 Pacific halibut  
 California Halibut  
 California barracuda  
 California lizardfish  
 barred surfperch  
 tiger rockfish  
 California barracuda  
 olive rockfish  
 California Halibut  
 California batray  
 California batray  
 spotted sand bass  
 spotted sand bass  
 black surfperch  
 black surfperch  
 shiner surfperch  
 topsmelt  
 speckled rockfish  
 widow rockfish  
 greenstriped rockfish  
 squarespot rockfish  
 widow rockfish  
 speckled rockfish  
 Coho salmon  
 California batray

# *sci\_name*

Seriola lalandi  
 Sebastes paucispinis  
 Sebastolobus altivelis  
 Katsuwonus pelamis  
 Sebastes macdonaldi  
 Sebastes macdonaldi  
 Sebastes gilli  
 Sebastes macdonaldi  
 Oncorhynchus kisutch  
 Thunnus albacares  
 Sebastes rosaceus  
 Sebastes ovalis  
 Sebastes constellatus  
 Cephaloscyllium ventriosum  
 Sebastes babcocki  
 Sebastes babcocki  
 Sebastes diploproa  
 Platyrrhinoides triseriata  
 Sebastes rufus  
 Sebastes ovalis  
 Sebastes ovalis  
 Genyonemus lineatus  
 Sebastes rubrivinctus  
 Sebastes babcocki  
 Sebastes serriceps  
 Sebastes caurinus  
 Hippoglossus stenolepis  
 Paralichthys californicus  
 Sphyrnaea argenta  
 Synodus lucioceps  
 Amphistichus argenteus  
 Sebastes nigrocinctus  
 Sphyrnaea argenta  
 Sebastes serranoides  
 Paralichthys californicus  
 Myliobatis californica  
 Myliobatis californica  
 Paralabrax maculatofasciatus  
 Paralabrax maculatofasciatus  
 Embiotoca jacksoni  
 Embiotoca jacksoni  
 Cymatogaster aggregata  
 Atherinops affinis  
 Sebastes ovalis  
 Sebastes entomelas  
 Sebastes elongatus  
 Sebastes hopkinsi  
 Sebastes entomelas  
 Sebastes ovalis  
 Oncorhynchus kisutch  
 Myliobatis californica

# *slang*

amberjack  
 andy gumps  
 anglefin rockfish  
 arctic bonito  
 arkansas black. coral cod  
 arkansas red  
 arkansas traveler  
 arkansas traveler  
 artic trout  
 autumn albacore  
 avacado rockfish  
 b.j.w. widow  
 bagre (span=cattfish)  
 balloon shark  
 bandit  
 bandit  
 banjo  
 banjo shark  
 bank perch  
 bank perch  
 bank perch  
 bank perch  
 barber pole  
 barber pole  
 barber pole convict bass  
 bariaga branca  
 barn door  
 barn door (large)  
 barracuda  
 barracuda  
 barred perch  
 barred rockfish  
 barry  
 bass rockfish  
 bastard halibut  
 bat sting ray  
 batfish  
 bay bass  
 bay bass  
 bay black perch  
 bay perch  
 bay perch  
 bay smelt  
 beccafico  
 beccafico  
 belinda bass  
 belinda bass  
 belinda bass  
 belinda cod  
 bielaya ryba  
 big black

*CRFS Sampler Manual*

stripetail rockfish	Sebastes saxicola	big-eye rockfish
bigeye tuna	Thunnus obesus	bigeye
salema	Xenistius californiensis	bigeye bass
pygmy rockfish	Sebastes wilsoni	bigeye rockfish
sharpchin rockfish	Sebastes zacentrus	bigeye rockfish
cabezon	Scorpaenichthys marmoratus	biggyhead
rubberlip seaperch	Rhacochilus toxotes	bigmouth surf-fish
sheephead	Semicossyphus pulcher	billygoats (large)
China rockfish	Sebastes nebulosus	black and yellow rockcod
black croaker	Cheilotrema saturnum	black bass
black rockfish	Sebastes melanops	black bass
sablefish	Anoplopoma fimbria	black candlefish
sargo	Anisotremus davidsoni	black croaker
spotfin croaker	Roncador stearnsi	black croaker
blacksmith	Chromis punctipinnis	black garibaldi
Chinook salmon	Oncorhynchus tshawytscha	black jaw
Chinook salmon	Oncorhynchus tshawytscha	black mouth
black croaker	Cheilotrema saturnum	black perch
black surfperch	Embiotoca jacksoni	black perch
blacksmith	Chromis punctipinnis	black perch
halfmoon	Medialuna californiensis	black perch
opaleye	Girella nigricans	black perch
black rockfish	Sebastes melanops	black sea bass
giant sea bass	Stereolepis gigas	black sea bass
giant sea bass	Stereolepis gigas	black sea bass
black surfperch	Embiotoca jacksoni	black seaperch
black rockfish	Sebastes melanops	black snapper
tiger rockfish	Sebastes nigrocinctus	blackbanded
darkblotched rockfish	Sebastes crameri	blackblotched rockfish
sablefish	Anoplopoma fimbria	blackcod
blackgill rockfish	Sebastes melanostomus	blackmouth rockfish
darkblotched rockfish	Sebastes crameri	blackmouth rockfish
rougeye rockfish	Sebastes aleutianus	blackthroat rockfish
shortraker rockfish	Sebastes borealis	blackthroated rockfish
rougeye rockfish	Sebastes aleutianus	blacktip rockfish
monkeyface prickleback	Cebidichthys violaceus	blenny eel
halfmoon	Medialuna californiensis	blooper
darkblotched rockfish	Sebastes crameri	blotchie
black croaker	Cheilotrema saturnum	blue bass
blue rockfish	Sebastes mystinus	blue bass
opaleye	Girella nigricans	blue bass
sargo	Anisotremus davidsoni	blue bass
cabezon	Scorpaenichthys marmoratus	blue cod
lingcod	Ophiodon elongatus	blue cod
blue shark	Prionace glauca	blue dog
blue rockfish	Sebastes mystinus	blue fish
lingcod	Ophiodon elongatus	blue fish
cabezon	Scorpaenichthys marmoratus	blue garnet
Pacific mackerel	Scomber japonicus	blue mackerel
blacksmith	Chromis punctipinnis	blue perch

*Common*

halfmoon  
rainbow surfperch  
striped surfperch  
blue shark  
shortfin mako shark  
white shark  
striped surfperch  
common thresher shark  
blue shark  
halfmoon  
opaleye  
opaleye  
Coho salmon  
Coho salmon  
sablefish  
black rockfish  
kelp greenling  
opaleye  
sablefish  
sevengill shark  
sixgill shark  
kelp greenling  
brown rockfish  
greenspotted rockfish  
Pacific bonito  
Pacific bonito  
longspine thornyhead  
Pacific bonito  
shortspine thornyhead  
Pacific bonito  
Pacific bonito  
Pacific bonito  
shortfin mako shark  
kelp greenling  
vermilion rockfish  
vermilion rockfish  
greenblotched rockfish  
greenspotted rockfish  
pink rockfish  
pink rockfish  
greenblotched rockfish  
petrale sole  
swordfish  
swordfish  
rock sole  
sevengill shark  
sevengill shark  
queenfish  
brown rockfish  
bocaccio

*sci\_name*

Medialuna californiensis  
Hypsurus caryi  
Embiotoca lateralis  
Prionace glauca  
Isurus oxyrinchus  
Carcharodon carcharias  
Embiotoca lateralis  
Alopias vulpinus  
Prionace glauca  
Medialuna californiensis  
Girella nigricans  
Girella nigricans  
Oncorhynchus kisutch  
Oncorhynchus kisutch  
Anoplopoma fimbria  
Sebastes melanops  
Hexagrammos decagrammus  
Girella nigricans  
Anoplopoma fimbria  
Notorynchus cepedianus  
Hexanchus griseus  
Hexagrammos decagrammus  
Sebastes auriculatus  
Sebastes chlorostictus  
Sarda chilensis  
Sarda chilensis  
Sebastes altivelis  
Sarda chilensis  
Sebastes alascanus  
Sarda chilensis  
Sarda chilensis  
Sarda chilensis  
Isurus oxyrinchus  
Hexagrammos decagrammus  
Sebastes miniatus  
Sebastes miniatus  
Sebastes rosenblatti  
Sebastes chlorostictus  
Sebastes chlorostictus  
Sebastes eos  
Sebastes eos  
Sebastes rosenblatti  
Eopsetta jordani  
Xiphus gladius  
Xiphus gladius  
Lepidopsetta bilineata  
Notorynchus cepedianus  
Notorynchus cepedianus  
Seriphus politus  
Sebastes auriculatus  
Sebastes paucispinis

*slang*

blue perch  
blue perch  
blue perch  
blue pointer  
blue pointer  
blue pointer  
blue surfperch  
blue thresher  
blue whaler  
blue wizard  
blue-eye  
blue-eyed perch  
blueback  
blueback salmon  
bluecod  
bluefish  
bluefish  
bluefish  
bluefish  
bluntnose sevengill shark  
bluntnose sixgill shark  
bodieron  
bolina  
bolina  
bone  
bonefish  
bonehead  
bonehead  
bonehead  
boner  
bongo  
bonita  
bonito  
boregat  
borracho  
borrachon  
bosco  
bosco  
bosco  
bosco  
boscos  
brill  
broadbill  
broadbill swordfish  
broadfin sole  
broadnose sevengill shark  
broadnouted shark  
brown bait  
brown bass  
brown bomber

*CRFS Sampler Manual*

brown rockfish	Sebastes auriculatus	brown bomber
dusky rockfish	Sebastes ciliatus	brown bomber
widow rockfish	Sebastes entomelas	brown bombers
redstripe rockfish	Sebastes proriger	brown striped rockfish
widow rockfish	Sebastes entomelas	brownies
widow rockfish	Sebastes entomelas	buda
lingcod	Ophiodon elongatus	buffalo
lingcod	Ophiodon elongatus	buffalo cod
Pacific staghorn sculpin	Leptocottus armatus	buffalo sculpin
rainbow surfperch	Hypsurus caryi	bugara
olive rockfish	Sebastes serranoides	bulera bass
kelp bass	Paralabrax clathratus	bull bass (large)
cabezon	Scorpaenichthys marmoratus	bull cod
white sea bass	Atractoscion nobilis	bull tomcod
white sea bass	Atractoscion nobilis	bull tomcod
sixgill shark	Hexanchus griseus	bulldog
brown Irish lord	Hemilepidotus spinosus	bullhead
cabezon	Scorpaenichthys marmoratus	bullhead
Pacific staghorn sculpin	Leptocottus armatus	bullhead
plainfin midshipman	Porichthys notatus	bullhead
red Irish lord	Hemilepidotus hemilepidotus	bullhead
horn shark	Heterodontus francisci	bullhead shark
sixgill shark	Hexanchus griseus	bullshark
rougeye rockfish	Sebastes aleutianus	buoy keg
shortraker rockfish	Sebastes borealis	buoy keg
gopher rockfish	Sebastes carnatus	butter bass
white croaker	Genyonemus lineatus	butter bass
California Halibut	Paralichthys californicus	butter fish
gopher rockfish	Sebastes carnatus	butterball
giant kelpfish	Heterostichus rostratus	butterfish
Pacific butterfly	Pepilus simillimus	butterfish
Pacific hake	Merluccius productus	butterfish
sablefish	Anoplopoma fimbria	butterfish
senorita	Oxyjulis californica	butterfish
rubberlip seaperch	Rhacochilus toxotes	buttermouth
black surfperch	Embiotoca jacksoni	buttermouth perch
opaleye	Girella nigricans	button perch
opaleye	Girella nigricans	button-back bass
Pacific herring	Clupea pallasii	ca herring
cabezon	Scorpaenichthys marmoratus	cab
cabezon	Scorpaenichthys marmoratus	cabby
kelp bass	Paralabrax clathratus	cabrilla
sixgill shark	Hexanchus griseus	caffa bota
cowcod	Sebastes levis	calf
kelp bass	Paralabrax clathratus	calico
kelp bass	Paralabrax clathratus	calico
spotted sand bass	Paralabrax maculatofasciatus	calico
kelp bass	Paralabrax clathratus	calico bass
canary rockfish	Sebastes pinniger	canary
redbanded rockfish	Sebastes babcocki	canary

*Common*

California lizardfish  
eulachon  
sablefish  
tiger rockfish  
petrale sole  
topsmelt  
white croaker  
lingcod  
leopard shark  
bronzespotted rockfish  
bronzespotted rockfish  
bronzespotted rockfish  
black and yellow rockfish  
China rockfish  
China rockfish  
splitnose rockfish  
longspine thornyhead  
shortspine thornyhead  
kelp bass  
cowcod  
white croaker  
black rockfish  
yellowtail rockfish  
Pacific halibut  
California Halibut  
chilipepper  
greenstriped rockfish  
redstripe rockfish  
black and yellow rockfish  
China rockfish  
gopher rockfish  
black croaker  
giant kelpfish  
greenspotted rockfish  
white surfperch  
China rockfish  
starry rockfish  
China rockfish  
Chinook salmon  
kelp greenling  
brown rockfish  
Pacific mackerel  
Chinook salmon  
copper rockfish  
greenblotched rockfish  
greenspotted rockfish  
pink rockfish  
speckled rockfish  
widow rockfish  
brown rockfish  
speckled rockfish

*sci\_name*

Synodus lucioceps  
Thaleichthys pacificus  
Anoplopoma fimbria  
Sebastes nigrocinctus  
Eopsetta jordani  
Atherinops affinis  
Genyonemus lineatus  
Ophiodon elongatus  
Triakis semifasciata  
Sebastes gilli  
Sebastes gilli  
Sebastes gilli  
Sebastes chrysomelas  
Sebastes nebulosus  
Sebastes nebulosus  
Sebastes diploproa  
Sebastolobus altivelis  
Sebastolobus alascanus  
Paralabrax clathratus  
Sebastes levis  
Genyonemus lineatus  
Sebastes melanops  
Sebastes flavidus  
Hippoglossus stenolepis  
Paralichthys californicus  
Sebastes goodei  
Sebastes elongatus  
Sebastes proriger  
Sebastes chrysomelas  
Sebastes nebulosus  
Sebastes carnatus  
Cheilotrema saturnum  
Heterostichus rostratus  
Sebastes chlorostictus  
Phanerodon furcatus  
Sebastes nebulosus  
Sebastes constellatus  
Sebastes nebulosus  
Oncorhynchus tshawytscha  
Hexagrammos decagrammus  
Sebastes auriculatus  
Scomber japonicus  
Oncorhynchus tshawytscha  
Sebastes caurinus  
Sebastes rosenblatti  
Sebastes chlorostictus  
Sebastes eos  
Sebastes ovalis  
Sebastes entomelas  
Sebastes auriculatus  
Sebastes ovalis

*slang*

candlefish  
candlefish  
candlefish  
candystripe  
cape sole  
capron  
carbinette  
card  
cat shark  
catalina  
catalina bass  
catalina salmon  
cefalutano  
cefalutano  
cerod  
channel cod  
channel rockfish  
channel rockfish  
checkerboard bass  
chefra  
chenfish  
cherne  
cherne  
chicken  
chicken halibut  
chili  
chilipepper  
chilipepper  
china cod  
china cod  
china cod  
china croaker  
china croaker  
china fish  
china pompano  
chinafish  
chinafish  
chinese rockfish  
chinook salmon  
chirus  
chocolate bass  
chub mackerel  
chub salmon  
chucklehead  
chucklehead  
chucklehead  
chucklehead  
cinnamon  
cinnamon  
cinnamon bass  
ciuva

*CRFS Sampler Manual*

sablefish	Anoplopoma fimbria	coal cod
canary rockfish	Sebastes pinniger	coal mine codalarga
sablefish	Anoplopoma fimbria	coalfish
black rockfish	Sebastes melanops	coastal black rockfish
gopher rockfish	Sebastes carnatus	cod
lingcod	Ophiodon elongatus	codfish
white croaker	Genyonemus lineatus	cognard
black rockfish	Sebastes melanops	columbia river rockfish
dolphin	Coryphaena hippurus	common dolphinfish
black surfperch	Embiotoca jacksoni	common surf-fish
moray eel	Gymnothorax mordax	conger eel
treefish	Sebastes serripes	convict bass
zebra perch	Hermosilla azurea	convict fish
flag rockfish	Sebastes rubrivinctus	convictfish
Mexican rockfish	Sebastes macdonaldi	coral red
Pacific mackerel	Scomber japonicus	cornfed
rosy rockfish	Sebastes rosaceus	corsair
redbanded rockfish	Sebastes babcocki	covict
cowcod	Sebastes levis	cow
cowcod	Sebastes levis	cow rockfish
sevengill shark	Notorynchus cepedianus	cow shark
sixgill shark	Hexanchus griseus	cow shark
cowcod	Sebastes levis	cowfish
yelloweye rockfish	Sebastes ruberrimus	cowfish
drum family	Sciaenidae	croakers
rockfish genus	Sebastes spp.	crotch cricket (small)
striped surfperch	Embiotoca lateralis	crugnoli
greenstriped rockfish	Sebastes elongatus	cucumber
California barracuda	Sphyrnaea argenta	cuda
lingcod	Ophiodon elongatus	cultus cod
Mexican rockfish	Sebastes macdonaldi	dark chili
pink rockfish	Sebastes eos	dawn rockfish
surfmelt	Hypomesus pretiosus	day smelt
surfmelt	Hypomesus pretiosus	dayfish
sablefish	Anoplopoma fimbria	deep sea trout
blackgill rockfish	Sebastes melanostomus	deepsea rockfish
rosethorn rockfish	Sebastes helvomaculatus	deepwater scacciatata
rosethorn rockfish	Sebastes helvomaculatus	deepwater scratch tail
starry flounder	Platichthys stellatus	diamond flounder
spiny dogfish shark	Squalus acanthias	dog shark
grey smoothhound shark	Mustelus californicus	dogfish
dolphin	Coryphaena hippurus	dolphinfish
California Halibut	Paralichthys californicus	door mat
dolphin	Coryphaena hippurus	dorado
rock sole	Lepidopsetta bilineata	double-lined flounder
dolphin	Coryphaena hippurus	dourade
lingcod	Ophiodon elongatus	dragon fish
yelloweye rockfish	Sebastes ruberrimus	drum
drum family	Sciaenidae	drums
rosy rockfish	Sebastes rosaceus	dude

*Common*

kelp rockfish  
pile surfperch  
honeycomb rockfish  
pygmy rockfish  
California batray  
giant kelpfish  
monkeyface prickleback  
starry flounder  
starry flounder  
fantail sole  
eulachon  
longspine thornyhead  
shortspine thornyhead  
canary rockfish  
sheephead  
copper rockfish  
Pacific sardine  
California barracuda  
redbanded rockfish  
California batray  
Pacific bonito  
California Halibut  
Pacific halibut  
canary rockfish  
rock sole  
sand sole  
California Halibut  
swordspine rockfish  
bluefin tuna  
yellowtail  
pile surfperch  
white surfperch  
common thresher shark  
quillback rockfish  
giant sea bass  
sand sole  
rock greenling  
Pacific mackerel  
cowcod  
California lizardfish  
greenstriped rockfish  
black rockfish  
China rockfish  
copper rockfish  
gopher rockfish  
grass rockfish  
kelp rockfish  
treefish  
lingcod  
vermillion rockfish  
yellowtail rockfish

*sci\_name*

Sebastes atrovirens  
Rhacochilus vacca  
Sebastes umbrosus  
Sebastes wilsoni  
Myliobatis californica  
Heterostichus rostratus  
Cebidichthys violaceus  
Platichthys stellatus  
Platichthys stellatus  
Xystreus liolepis  
Thaleichthys pacificus  
Sebastolobus altivelis  
Sebastolobus alascanus  
Sebastes pinniger  
Semicossyphus pulcher  
Sebastes caurinus  
Sardinops sagax  
Sphyrnaea argenta  
Sebastes babcocki  
Myliobatis californica  
Sarda chilensis  
Paralichthys californicus  
Hippoglossus stenolepis  
Sebastes pinniger  
Lepidopsetta bilineata  
Psettichthys melanostictus  
Paralichthys californicus  
Sebastes ensifer  
Thunnus orientalis  
Seriola lalandi  
Rhacochilus vacca  
Phanerodon furcatus  
Alopias vulpinus  
Sebastes maliger  
Stereolepis gigas  
Psettichthys melanostictus  
Hexagrammos lagocephalus  
Scomber japonicus  
Sebastes levis  
Synodus lucioceps  
Sebastes elongatus  
Sebastes melanops  
Sebastes nebulosus  
Sebastes caurinus  
Sebastes carnatus  
Sebastes rastrelliger  
Sebastes atrovirens  
Sebastes serripes  
Ophiodon elongatus  
Sebastes miniatus  
Sebastes flavidus

*slang*

dumb bass  
dusky perch  
dusky rockfish  
dwarf rockfish  
eagle ray  
eel  
eel  
emery flounder  
emerywheel  
entire range  
eurachon  
fagiano  
fagiano  
fantail  
fathead  
fighting bob  
fire crackers  
fire hose  
flag  
flapper  
flasher  
flatty  
flatty  
fliaum  
flounder  
flounder  
fly swatter (small)  
flyfish  
footballs  
forktail  
forktail perch  
forktail perch  
fox shark  
frecklebelly  
freight train  
fringe sole  
fringed greenling  
frog  
gallo  
gar  
garnet  
garrupa  
garrupa  
garrupa  
garrupa  
garrupa  
garrupa  
gator  
genuine red  
gialota

*CRFS Sampler Manual*

giant sea bass	Stereolepis gigas	giant bass
monkeyface prickleback	Cebidichthys violaceus	giant monkeyface eel
cabezon	Scorpaenichthys marmoratus	giant sculpin
giant sea bass	Stereolepis gigas	giant sea bass
yellowtail rockfish	Sebastes flavidus	giola
sheephead	Semicossyphus pulcher	goat
spotfin croaker	Roncador stearnsi	golden croaker
yellowfin croaker	Umbrina roncadore	golden croaker
green sturgeon	Acipenser medirostris	golden sturgeon
yelloweye rockfish	Sebastes ruberrimus	goldeneye
garibaldi	Hypsypops rubicundus	goldfish
black and yellow rockfish	Sebastes chrysomelas	gopher
China rockfish	Sebastes nebulosus	gopher
copper rockfish	Sebastes caurinus	gopher
gopher rockfish	Sebastes carnatus	gopher
kelp rockfish	Sebastes atrovirens	gopher
treefish	Sebastes sericeus	gopher
kelp rockfish	Sebastes atrovirens	gopher bass
black and yellow rockfish	Sebastes chrysomelas	gopher cod
quillback rockfish	Sebastes maliger	gophers
bigeye tuna	Thunnus obesus	gorilla
grass rockfish	Sebastes rastrelliger	grass bass
kelp rockfish	Sebastes atrovirens	grass bass
rock sole	Lepidopsetta bilineata	gravel sole
black rockfish	Sebastes melanops	gray rockfish
grey smoothhound shark	Mustelus californicus	gray shark
spiny dogfish shark	Squalus acanthias	grayfish
bluefin tuna	Thunnus orientalis	great albacore
blue shark	Prionace glauca	great blue shark
starry flounder	Platichthys stellatus	great flounder
white shark	Carcharodon carcharias	great white shark
grass rockfish	Sebastes rastrelliger	green bomber
lingcod	Ophiodon elongatus	green cod
grass rockfish	Sebastes rastrelliger	green garrupa
kelp rockfish	Sebastes atrovirens	green garrupa
opaleye	Girella nigricans	green perch
Pacific mackerel	Scomber japonicus	green racer
kelp rockfish	Sebastes atrovirens	green rockfish
yellowtail rockfish	Sebastes flavidus	green rockfish
yellowtail rockfish	Sebastes flavidus	green snapper
common thresher shark	Alopias vulpinus	green thresher
Pacific mackerel	Scomber japonicus	greenback
Pacific mackerel	Scomber japonicus	greenback jack
Pacific mackerel	Scomber japonicus	greenback mackerel
spiny dogfish shark	Squalus acanthias	greeneyed grinner
opaleye	Girella nigricans	greenfish
striped bass	Morone saxatilis	greenhead
olive rockfish	Sebastes serranoides	greenie
silvergray rockfish	Sebastes brevispinis	greenie
yellowtail rockfish	Sebastes flavidus	greenies

*Common*

kelp greenling  
rock greenling  
lingcod  
albacore  
sixgill shark  
starry flounder  
sixgill shark  
barred sand bass  
brown rockfish  
bocaccio  
spotted sand bass  
barred sand bass  
sargo  
plainfin midshipman  
shovelnose guitarfish  
longspine thornyhead  
shortspine thornyhead  
longspine thornyhead  
shortspine thornyhead  
Pacific hake  
California Halibut  
swordspine rockfish  
spiny dogfish shark  
longspine thornyhead  
shortspine thornyhead  
Pacific herring  
Pacific herring  
queenfish  
white croaker  
queenfish  
spiny dogfish shark  
flag rockfish  
redbanded rockfish  
Chinook salmon  
Coho salmon  
eulachon  
longspine thornyhead  
shortspine thornyhead  
Coho salmon  
horn shark  
spiny dogfish shark  
calico surfperch  
sheephead  
longspine thornyhead  
shortspine thornyhead  
longspine thornyhead  
shortspine thornyhead  
halfbanded rockfish  
giant kelpfish  
rock wrasse  
senorita

*sci\_name*

Hexagrammos decagrammus  
Hexagrammos lagocephalus  
Ophiodon elongatus  
Thunnus alalunga  
Hexanchus griseus  
Platichthys stellatus  
Hexanchus griseus  
Paralabrax nebulifer  
Sebastes auriculatus  
Sebastes paucispinis  
Paralabrax maculatofasciatus  
Paralabrax nebulifer  
Anisotremus davidsoni  
Porichthys notatus  
Rhinobatos productus  
Sebastolobus altivelis  
Sebastolobus alascanus  
Sebastolobus altivelis  
Sebastolobus alascanus  
Merluccius productus  
Paralichthys californicus  
Sebastes ensifer  
Squalus acanthias  
Sebastolobus altivelis  
Sebastolobus alascanus  
Clupea pallasii  
Clupea pallasii  
Seriphus politus  
Genyonemus lineatus  
Seriphus politus  
Squalus acanthias  
Sebastes rubrivinctus  
Sebastes babcocki  
Oncorhynchus tshawytscha  
Oncorhynchus kisutch  
Thaleichthys pacificus  
Sebastolobus altivelis  
Sebastolobus alascanus  
Oncorhynchus kisutch  
Heterodontus francisci  
Squalus acanthias  
Amphistichus koelzi  
Semicossyphus pulcher  
Sebastolobus altivelis  
Sebastolobus alascanus  
Sebastolobus altivelis  
Sebastolobus alascanus  
Sebastes semicinctus  
Heterostichus rostratus  
Halichoeres semicinctus  
Oxyjulis californica

*slang*

greenling sea trout  
greenling sea trout  
greenlinger  
gremon  
grey shark  
grindstone  
griset  
ground bass  
ground owl  
grouper  
grumpy  
grumpy (large)  
grunt  
grunter  
guitarfish  
gurnard  
gurnard  
gurnet  
gurnet  
haddock  
hali  
hanky panky  
harbor halibut  
hardhead  
hardhead  
hareng  
herring  
herring  
herring  
herring croaker  
ho  
hollywood  
hollywood  
hookbill  
hookbill  
hooligan  
hooligan  
hooligan  
hoopid  
horned shark  
horned shark  
humpback perch  
humpy  
idiot  
idiot  
idiot fish  
idiot fish  
inspector  
iodine fish  
iodine fish  
iodine fish

*CRFS Sampler Manual*

bocaccio	Sebastes paucispinis	jack
topsmelt	Atherinops affinis	jack
yellowtail	Seriola lalandi	jack
opaleye	Girella nigricans	jack benny
bocaccio	Sebastes paucispinis	jack grouper
bocaccio	Sebastes paucispinis	jackfish
olive rockfish	Sebastes serranoides	johnnathans
chilipepper	Sebastes goodei	johnnies
olive rockfish	Sebastes serranoides	johnny bass
yellowtail rockfish	Sebastes flavidus	johnny bass
chilipepper	Sebastes goodei	johnny cod
barred sand bass	Paralabrax nebulifer	johnny verde
yellowtail rockfish	Sebastes flavidus	jonathan's
sand sole	Psettichthys melanostictus	karui-rui
barred sand bass	Paralabrax nebulifer	kelp bass
grass rockfish	Sebastes rastrelliger	kelp bass
olive rockfish	Sebastes serranoides	kelp bass
giant kelpfish	Heterostichus rostratus	kelp blenny
kelp greenling	Hexagrammos decagrammus	kelp cod
rock greenling	Hexagrammos lagocephalus	kelp cod
blacksmith	Chromis punctipinnis	kelp perch
grass rockfish	Sebastes rastrelliger	kelp rockfish
kelp bass	Paralabrax clathratus	kelp salmon
olive rockfish	Sebastes serranoides	kelp salmon
kelp greenling	Hexagrammos decagrammus	kelp trout
rock greenling	Hexagrammos lagocephalus	kelp trout
senorita	Oxyjulis californica	kelp wrasse
olive rockfish	Sebastes serranoides	kelp yellowtail
giant kelpfish	Heterostichus rostratus	kelpfish
senorita	Oxyjulis californica	kelpfish
white sea bass	Atractoscion nobilis	king croaker
Chinook salmon	Oncorhynchus tshawytscha	king salmon
queenfish	Seriphus politus	kingfish
white croaker	Genyonemus lineatus	kingfish
Coho salmon	Oncorhynchus kisutch	kitsutch
Pacific bonito	Sarda chilensis	laguna tuna
bluefin tuna	Thunnus orientalis	leaping tuna
topsmelt	Atherinops affinis	least smelt
lingcod	Ophiodon elongatus	leopard cod
skipjack	Katsuwonus pelamis	lesser tuna
lingcod	Ophiodon elongatus	ling
treefish	Sebastes serripes	lipstick bass
treefish	Sebastes serripes	lipstick fish
white croaker	Genyonemus lineatus	little bass
topsmelt	Atherinops affinis	little smelt
Pacific bonito	Sarda chilensis	little tuna
rubberlip seaperch	Rhacochilus toxotes	liverlip
California lizardfish	Synodus lucioceps	lizardfish
longspine thornyhead	Sebastolobus altivelis	lobe-finned rockfish
shortspine thornyhead	Sebastolobus alascanus	lobe-finned rockfish

*Common*

splitnose rockfish  
kelp bass  
California barracuda  
California barracuda  
albacore  
albacore  
bocaccio  
silvergray rockfish  
Pacific ocean perch  
common thresher shark  
bank rockfish  
shortfin mako shark  
Pacific bonito  
dolphin  
shortfin mako shark  
white shark  
cabezon  
striped marlin  
Pacific sanddab  
speckled sanddab  
bocaccio  
Pacific bonito  
bonito  
plainfin midshipman  
bocaccio  
Pacific bonito  
rainbow surfperch  
mola  
monkeyface prickleback  
California batray  
monkeyface prickleback  
Pacific angel shark  
cowcod  
canary rockfish  
opah  
moray eel  
wolf eel  
yellowtail  
copper rockfish  
Pacific sanddab  
speckled sanddab  
California batray  
sixgill shark  
spiny dogfish shark  
Pacific ocean perch  
squarespot rockfish  
petrale sole  
starry flounder  
black rockfish  
blue rockfish  
blue rockfish

*sci\_name*

Sebastes diploproa  
Paralabrax clathratus  
Sphyrna argenta  
Sphyrna argenta  
Thunnus alalunga  
Thunnus alalunga  
Sebastes paucispinis  
Sebastes brevispinis  
Sebastes alutus  
Alopias vulpinus  
Sebastes rufus  
Isurus oxyrinchus  
Sarda chilensis  
Coryphaena hippurus  
Isurus oxyrinchus  
Carcharodon carcharias  
Scorpaenichthys marmoratus  
Tetrapturus audax  
Citharichthys sordidus  
Citharichthys stigmaeus  
Sebastes paucispinis  
Sarda chilensis  
Sarda chilensis  
Porichthys notatus  
Sebastes paucispinis  
Sarda chilensis  
Hypsurus caryi  
Mola mola  
Cebidichthys violaceus  
Myliobatis californica  
Cebidichthys violaceus  
Squantina californica  
Sebastes levis  
Sebastes pinniger  
Lampris regius  
Gymnothorax mordax  
Anarrhichthys ocellatus  
Seriola lalandi  
Sebastes caurinus  
Citharichthys sordidus  
Citharichthys stigmaeus  
Myliobatis californica  
Hexanchus griseus  
Squalus acanthias  
Sebastes alutus  
Sebastes hopkinsi  
Eopsetta jordani  
Platichthys stellatus  
Sebastes melanops  
Sebastes mystinus  
Sebastes mystinus

*slang*

lobe-jawed rockfish  
lockee cod  
log  
log barracuda  
long fin tuna  
longfin  
longjaw  
longjaw  
longjaw rockfish  
longtail shark  
lucky fish  
mackerel shark  
magneto  
mahi mahi  
mako  
maneater shark  
marble sculpin  
marlin  
megrim  
megrim  
merou  
micronito  
micronito or mini-striper (sma)  
midshipman  
mini-grouper (juveniles)  
mini-striper  
moharra  
mola  
monkey face eel  
monkey face ray  
monkeyface blenny  
monkfish  
moo's  
moondog  
moonfish  
moray  
moray eel  
mossback  
mother-in-law  
mottled sanddab  
mottled sanddab  
mud marlin  
mud shark  
mud shark  
muddy bass  
mustard perch  
nameta  
nattaaznak  
neri  
neri  
neri

*CRFS Sampler Manual*

copper rockfish	Sebastes caurinus	never die
night smelt	Spirinchus starksi	nightfish
Pacific angel shark	Squantina californica	northern angel shark
plainfin midshipman	Porichthys notatus	northern midshipman
copper rockfish	Sebastes caurinus	northern rockfish
spiny dogfish shark	Squalus acanthias	northern shark
starry flounder	Platichthys stellatus	northern starry flounder
hake	Merluccius productus	oatmeal fish
Pacific hake	Merluccius productus	oatmeal fish
stripetail rockfish	Sebastes saxicola	occhio-grande
Pacific bonito	Sarda chilensis	ocean bonito
northern anchovy	Engraulis mordax	ocean northern anchovy
Pacific ocean perch	Sebastes alutus	ocean perch
mola	Mola mola	ocean sunfish
ocean whitefish	Caulolatilus princeps	ocean tilefish
Pacific hake	Merluccius productus	ocean whitefish
skipjack	Katsuwonus pelamis	oceanic bonito
soupfin shark	Galeorhinus zyopterus	oil shark
stripetail rockfish	Sebastes saxicola	oliveback rockfish
kelp rockfish	Sebastes atrovirens	oogly-googly
kelp rockfish	Sebastes atrovirens	oogly-googly
opaleye	Girella nigricans	opaleye perch
canary rockfish	Sebastes pinniger	orange rockfish
chameleon rockfish	Sebastes phillipsi	orange rockfish
rosethorn rockfish	Sebastes helvomaculatus	orange-red rockfish
quillback rockfish	Sebastes maliger	orangespotted
bluefin tuna	Thunnus orientalis	oriental tuna
brown rockfish	Sebastes auriculatus	p.d. bass
albacore	Thunnus alalunga	pacific albacore
California barracuda	Sphyræna argenta	pacific barracuda
spiny dogfish shark	Squalus acanthias	pacific grayfish
shortfin mako shark	Isurus oxyrinchus	pacific mako
striped marlin	Tetrapturus audax	pacific marlin
bocaccio	Sebastes paucispinis	pacific red snapper
copper rockfish	Sebastes caurinus	paler montana
grey smoothhound shark	Mustelus californicus	paloma
topsmelt	Atherinops affinis	panzarotti
rock wrasse	Halichoeres semicinctus	parrot fish
China rockfish	Sebastes nebulosus	pelican
California barracuda	Sphyræna argenta	pencils
grass rockfish	Sebastes rastrelliger	pepper bass
blacksmith	Chromis punctipinnis	perch
Pacific ocean perch	Sebastes alutus	perch
sargo	Anisotremus davidsoni	perch
shiner surfperch	Cymatogaster aggregata	perch
striped surfperch	Embiotoca lateralis	perch
zebra perch	Hermosilla azurea	perch
surfmelt	Hypomesus pretiosus	perlin
black rockfish	Sebastes melanops	pesce prete
blue rockfish	Sebastes mystinus	pesce prete

*Common*

greenspotted rockfish  
petrale sole  
tomcod  
spiny dogfish shark  
albacore  
Pacific sardine  
rubberlip seaperch  
spiny dogfish shark  
northern anchovy  
California barracuda  
spiny dogfish shark  
northern anchovy  
greenstriped rockfish  
shovelnose guitarfish  
kelp bass  
Pacific butterfish  
ocean whitefish  
Pacific ocean perch  
Pacific hake  
stripetail rockfish  
shortfin mako shark  
rubberlip seaperch  
calico surfperch  
black surfperch  
pile surfperch  
redtail surfperch  
silver surfperch  
yelloweye rockfish  
blue rockfish  
swell shark  
Chinook salmon  
Coho salmon  
rainbow surfperch  
striped surfperch  
topsmelt  
vermillion rockfish  
vermillion rockfish  
yelloweye rockfish  
California scorpionfish  
California batray  
yellowtail rockfish  
redbanded rockfish  
sheephead  
greenspotted rockfish  
splitnose rockfish  
starry rockfish  
vermillion rockfish  
yelloweye rockfish  
canary rockfish  
vermillion rockfish  
black croaker

*sci\_name*

Sebastes chlorostictus  
Eopsetta jordani  
Microgadus proximus  
Squalus acanthias  
Thunnus alalunga  
Sardinops sagax  
Rhacochilus toxotes  
Squalus acanthias  
Engraulis mordax  
Sphyræna argenta  
Squalus acanthias  
Engraulis mordax  
Sebastes elongatus  
Rhinobatos productus  
Paralabrax clathratus  
Peprilus simillimus  
Caulolatilus princeps  
Sebastes alutus  
Merluccius productus  
Sebastes saxicola  
Isurus oxyrinchus  
Rhacochilus toxotes  
Amphistichus koelzi  
Embiotoca jacksoni  
Rhacochilus vacca  
Amphistichus rhodoterus  
Hyperprosopon ellipticum  
Sebastes ruberrimus  
Sebastes mystinus  
Cephaloscyllium ventriosum  
Oncorhynchus tshawytscha  
Oncorhynchus kisutch  
Hypsurus caryi  
Embiotoca lateralis  
Atherinops affinis  
Sebastes miniatus  
Sebastes miniatus  
Sebastes ruberrimus  
Scorpaena guttata  
Myliobatis californica  
Sebastes flavidus  
Sebastes babcocki  
Semicossyphus pulcher  
Sebastes chlorostictus  
Sebastes diploproa  
Sebastes constellatus  
Sebastes miniatus  
Sebastes ruberrimus  
Sebastes pinniger  
Sebastes miniatus  
Cheilotrema saturnum

*slang*

pesce vermiglia  
petorau  
picciata  
picked or piked dogfish  
pigfish  
pilchards  
pile perch  
pinback  
pinheads  
pinks  
pinole  
plain anchovy  
poinsettias  
pointed nosed guitarfish  
police car  
pompano  
poor man's yellowtail  
pop and seabastes  
popeye  
popeye rockfish  
porbeagle  
porgee  
porgie  
porgy  
porgy  
porgy  
porgy  
potbelly  
priestfish  
puffer shark  
quinnat  
quisutch  
rainbow perch  
rainbow perch  
rainbow smelt  
rasciera  
rasher  
rasp head  
rattlesnake  
ray  
real yellowtail  
red bandit  
red fish  
red rock cod  
red rock cod  
red rock cod  
red rock cod  
red rock cod/fish  
red rockfish  
red rockfish  
red roncadador

*CRFS Sampler Manual*

spotfin croaker	Roncador stearnsi	red roncador
red Irish lord	Hemilepidotus hemilepidotus	red sculpin
rock greenling	Hexagrammos lagocephalus	red sea trout
black rockfish	Sebastes melanops	red snapper
bocaccio	Sebastes paucispinis	red snapper
canary rockfish	Sebastes pinniger	red snapper
chilipepper	Sebastes goodei	red snapper
cowcod	Sebastes levis	red snapper
rockfish genus	Sebastes spp.	red snapper
shortraker rockfish	Sebastes borealis	red snapper
vermilion rockfish	Sebastes miniatus	red snapper
vermilion rockfish	Sebastes miniatus	red snapper
widow rockfish	Sebastes entomelas	red snapper
yelloweye rockfish	Sebastes ruberrimus	red snapper
yellowtail rockfish	Sebastes flavidus	red snapper
kelp bass	Paralabrax clathratus	red spotted rock bass
spotted sand bass	Paralabrax maculatofasciatus	red spotted rock bass
bank rockfish	Sebastes rufus	red widow
yellowmouth rockfish	Sebastes reedi	redeye
bocaccio	Sebastes paucispinis	redfish
Pacific ocean perch	Sebastes alutus	redfish
splitnose rockfish	Sebastes diploproa	redfish
canary rockfish	Sebastes pinniger	reds
vermilion rockfish	Sebastes miniatus	reds
redtail surfperch	Amphistichus rhodoterus	redtail seaperch
redtail surfperch	Amphistichus rhodoterus	redtail seaperch
yellowmouth rockfish	Sebastes reedi	reedi
blue rockfish	Sebastes mystinus	reef perch
greenstriped rockfish	Sebastes elongatus	reina
rosy rockfish	Sebastes rosaceus	rinky dink
barred sand bass	Paralabrax nebulifer	rock bass
blacksmith	Chromis punctipinnis	rock bass
gopher rockfish	Sebastes carnatus	rock bass
grass rockfish	Sebastes rastrelliger	rock bass
kelp bass	Paralabrax clathratus	rock bass
striped bass	Morone saxatilis	rock bass
grass rockfish	Sebastes rastrelliger	rock cod
rock sole	Lepidopsetta bilineata	rock flounder
rock sole	Lepidopsetta bilineata	rock flounder
silvergray rockfish	Sebastes brevispinis	rock grouper
blacksmith	Chromis punctipinnis	rock perch
bocaccio	Sebastes paucispinis	rock salmon
olive rockfish	Sebastes serranoides	rock salmon
silvergray rockfish	Sebastes brevispinis	rock salmon
kelp greenling	Hexagrammos decagrammus	rock trout
rock greenling	Hexagrammos lagocephalus	rock trout
rockfish genus	Sebastes spp.	rockcod
kelp greenling	Hexagrammos decagrammus	rockfish
spotfin croaker	Roncador stearnsi	roncador
white croaker	Genyonemus lineatus	roncador

*Common*

drum family  
white croaker  
drum family  
cowcod  
cowcod  
shortraker rockfish  
Pacific ocean perch  
splitnose rockfish  
rosethorn rockfish  
redtail surfperch  
starry flounder  
rock sole  
longspine thornyhead  
shortspine thornyhead  
thornback  
petrale sole  
sevengill shark  
rock sole  
rubberlip seaperch  
rubberlip seaperch  
sablefish  
copper rockfish  
bocaccio  
Mexican rockfish  
bocaccio  
shortfin mako shark  
spiny dogfish shark  
cabezon  
barred sand bass  
brown rockfish  
kelp bass  
spotted sand bass  
speckled sanddab  
sand sole  
starry flounder  
starry flounder  
barred surfperch  
brown smoothhound  
gray smoothhound  
gray smoothhound shark  
shovelnose guitarfish  
spiny dogfish shark  
night smelt  
barred sand bass  
greenblotched rockfish  
greenspotted rockfish  
pink rockfish  
Pacific herring  
rosethorn rockfish  
rosy rockfish  
starry rockfish

*sci\_name*

Sciaenidae  
Genyonemus lineatus  
Sciaenidae  
Sebastes levis  
Sebastes levis  
Sebastes borealis  
Sebastes alutus  
Sebastes diploproa  
Sebastes helvomaculatus  
Amphistichus rhodoterus  
Platichthys stellatus  
Lepidopsetta bilineata  
Sebastes altivelis  
Sebastes alascanus  
Platyrhynchus triseriata  
Eopsetta jordani  
Notorynchus cepedianus  
Lepidopsetta bilineata  
Rhacochilus toxotes  
Rhacochilus toxotes  
Anoplopoma fimbria  
Sebastes caurinus  
Sebastes paucispinis  
Sebastes macdonaldi  
Sebastes paucispinis  
Isurus oxyrinchus  
Squalus acanthias  
Scorpaenichthys marmoratus  
Paralabrax nebulifer  
Sebastes auriculatus  
Paralabrax clathratus  
Paralabrax maculatofasciatus  
Citharichthys stigmaeus  
Psettichthys melanostictus  
Platichthys stellatus  
Platichthys stellatus  
Amphistichus argenteus  
Mustelus henlei  
Mustelus californicus  
Mustelus californicus  
Rhinobatos productus  
Squalus acanthias  
Spirinchus starksi  
Paralabrax nebulifer  
Sebastes rosenblatti  
Sebastes chlorostictus  
Sebastes eos  
Clupea pallasii  
Sebastes helvomaculatus  
Sebastes rosaceus  
Sebastes constellatus

*slang*

roncadores  
ronkie  
ronkies  
rooster  
roosterfish  
rose rockfish  
rosefish  
rosefish  
rosies  
rosy surf fish  
rough jacket  
roughback sole  
round rockfish  
round rockfish  
round skate  
round-nosed sole  
roundsnout shark  
rubber sole  
rubberlip seaperch  
rubberlip surfperch  
sable  
sailfin  
salmon grouper  
salmon grouper  
salmon rockfish  
salmon shark  
salmon shark  
salpa  
sand bass  
sand bass  
sand bass  
sand bass  
sand dab  
sand flounder  
sand paper flounder  
sand paper flounder  
sand perch  
sand shark  
sand shark  
sand shark  
sand shark  
sand shark  
sand smelt  
sandy  
santa maria  
santa maria  
santa maria  
sardine  
scacciatale  
scacciatale  
scacciatale

*CRFS Sampler Manual*

cabezon	Scorpaenichthys marmoratus	scaleless sculpin
rosy rockfish	Sebastes rosaceus	schizo
grass rockfish	Sebastes rastrelliger	schmo
soupin shark	Galeorhinus zyopterus	school shark
grass rockfish	Sebastes rastrelliger	scomoda
California barracuda	Sphyaena argenta	scoot
California barracuda	Sphyaena argenta	scooter
cabezon	Scorpaenichthys marmoratus	scorpion
California scorpionfish	Scorpaena guttata	scorpion
longspine thornyhead	Sebastolobus altivelis	scorpion
shortspine thornyhead	Sebastolobus alascanus	scorpion
rosy rockfish	Sebastes rosaceus	scratchtail
greenspotted rockfish	Sebastes chlorostictus	scrub
rockfish genus	Sebastes spp.	scrub (small)
cabezon	Scorpaenichthys marmoratus	sculpin
California scorpionfish	Scorpaena guttata	sculpin
yellowtail rockfish	Sebastes flavidus	sea bass
California batray	Myliobatis californica	sea bird
common thresher shark	Alopias vulpinus	sea fox
California batray	Myliobatis californica	sea ray
Coho salmon	Oncorhynchus kisutch	sea trout
queenfish	Seriphus politus	sea trout
sablefish	Anoplopoma fimbria	sea trout
white sea bass	Atractoscion nobilis	sea trout
white sea bass	Atractoscion nobilis	sea trout (juvenile)
Pacific herring	Clupea pallasii	seld
greenstriped rockfish	Sebastes elongatus	serena
shiner surfperch	Cymatogaster aggregata	seven-eleven perch
bocaccio	Sebastes paucispinis	sewer salmon
white croaker	Genyonemus lineatus	sewer trout
olive rockfish	Sebastes serranoides	shallow water yellowtail
grey smoothhound shark	Mustelus californicus	shark
shortfin mako shark	Isurus oxyrinchus	sharp-nosed mackerel shark
sheephead	Semicossyphus pulcher	sheephead
sheephead	Semicossyphus pulcher	sheepie
queenfish	Seriphus politus	shiner
shiner surfperch	Cymatogaster aggregata	shiner
silver surfperch	Hyperprosopon ellipticum	shiner
silver surfperch	Hyperprosopon ellipticum	shiner
white croaker	Genyonemus lineatus	shiner
white surfperch	Phanerodon furcatus	shiner
shiner surfperch	Cymatogaster aggregata	shiner perch
shiner surfperch	Cymatogaster aggregata	shiner seaperch
flag rockfish	Sebastes rubrivinctus	shofflies
rock sole	Lepidopsetta bilineata	short-finned sole
shortfin mako shark	Isurus oxyrinchus	shortfin mako
bluefin tuna	Thunnus orientalis	shortfin tuna
silvergray rockfish	Sebastes brevispinis	shortspine rockfish
thornback	Platyrrhinoidis triseriata	shovelnose
shovelnose guitarfish	Rhinobatos productus	shovelnose shark

*Common*

sixgill shark  
redstripe rockfish  
Pacific hake  
barred surfperch  
pile surfperch  
silver surfperch  
walleye surfperch  
Chinook salmon  
Coho salmon  
surfsmelt  
barred surfperch  
silvergray rockfish  
silvergray rockfish  
Coho salmon  
plainfin midshipman  
black rockfish  
sixgill shark  
lingcod  
sablefish  
sablefish  
California barracuda  
skipjack  
rosy rockfish  
rosy rockfish  
Coho salmon  
pygmy rockfish  
shortbelly rockfish  
shortbelly rockfish  
longspine thornyhead  
shortspine thornyhead  
rock sole  
bocaccio  
lingcod  
eulachon  
squarespot rockfish  
rock sole  
surfsmelt  
Pacific staghorn sculpin  
Pacific staghorn sculpin  
brown smoothhound  
gray smoothhound  
grey smoothhound shark  
California barracuda  
California lizardfish  
shortraker rockfish  
silvergray rockfish  
widow rockfish  
Pacific sanddab  
speckled sanddab  
petrale sole  
Pacific sanddab

*sci\_name*

Hexanchus griseus  
Sebastes proriger  
Merluccius productus  
Amphistichus argenteus  
Rhacochilus vacca  
Hyperprosopon ellipticum  
Hyperprosopon argenteum  
Oncorhynchus tshawytscha  
Oncorhynchus kisutch  
Hypomesus pretiosus  
Amphistichus argenteus  
Sebastes brevispinis  
Sebastes brevispinis  
Oncorhynchus kisutch  
Porichthys notatus  
Sebastes melanops  
Hexanchus griseus  
Ophiodon elongatus  
Anoplopoma fimbria  
Anoplopoma fimbria  
Sphyaena argenta  
Katsuwonus pelamis  
Sebastes rosaceus  
Sebastes rosaceus  
Oncorhynchus kisutch  
Sebastes wilsoni  
Sebastes jordani  
Sebastes jordani  
Sebastolobus altivelis  
Sebastolobus alascanus  
Lepidopsetta bilineata  
Sebastes paucispinis  
Ophiodon elongatus  
Thaleichthys pacificus  
Sebastes hopkinsi  
Lepidopsetta bilineata  
Hypomesus pretiosus  
Leptocottus armatus  
Leptocottus armatus  
Mustelus henlei  
Mustelus californicus  
Mustelus californicus  
Sphyaena argenta  
Synodus lucioceps  
Sebastes borealis  
Sebastes brevispinis  
Sebastes entomelas  
Citharichthys sordidus  
Citharichthys stigmatæus  
Eopsetta jordani  
Citharichthys sordidus

*slang*

shovelnose shark  
sidestripe rockfish  
silver hake  
silver perch  
silver perch  
silver perch  
silver perch  
silver salmon  
silver salmon  
silver smelt  
silver surf fish  
silverbelly  
silverside  
silversides  
singing fish  
sitka black bass  
sixgill cow shark  
skilfish  
skilfish  
skill  
skinny  
skippies  
skits  
skitsadelly  
skowitz  
slender rockfish  
slender rockfish  
slim rockfish  
slim thornyhead  
slim thornyhead  
slime sole  
slimey  
slinky linky  
smallfish Pacific smelt  
smallmouth rockfish  
smear dab  
smelt  
smooth cabezon  
smooth sculpin  
smoothhound shark  
smoothhound shark  
smoothhound shark  
snake  
snakefish  
snapper  
snapper  
soft brown  
soft flounder  
soft flounder  
soglia  
sole

*CRFS Sampler Manual*

petrale sole	Eopsetta jordani	sole
rock sole	Lepidopsetta bilineata	sole
sand sole	Psettichthys melanostictus	sole
speckled sanddab	Citharichthys stigmatæus	sole
soupin shark	Galeorhinus zyopterus	soupin
California Halibut	Paralichthys californicus	southern halibut
flag rockfish	Sebastes rubrivinctus	spanish flag
shiner surfperch	Cymatogaster aggregata	sparada
striped marlin	Tetrapturus audax	spearfish
China rockfish	Sebastes nebulosus	speckled garrupa
honeycomb rockfish	Sebastes umbrosus	speckled rockfish
quillback rockfish	Sebastes maliger	speckled rockfish
kelp greenling	Hexagrammos decagrammus	speckled sea trout
striped marlin	Tetrapturus audax	spikefish
spiny dogfish shark	Squalus acanthias	spikey jack
spiny dogfish shark	Squalus acanthias	spinarola
longspine thornyhead	Sebastolobus altivelis	spinycheeked rockfish
shortspine thornyhead	Sebastolobus alascanus	spinycheeked rockfish
splitnose rockfish	Sebastes diploproa	splitlips
pile surfperch	Rhacochilus vacca	splittail perch
white surfperch	Phanerodon furcatus	splittail perch
spotfin croaker	Roncador stearnsi	spot
spotfin croaker	Roncador stearnsi	spotfin drum
spotted sand bass	Paralabrax maculatofasciatus	spotted
red Irish lord	Hemilepidotus hemilepidotus	spotted Irish lord
spotted sand bass	Paralabrax maculatofasciatus	spotted bass
spotted sand bass	Paralabrax maculatofasciatus	spotted bay bass
black rockfish	Sebastes melanops	spotted black rockfish
spotted sand bass	Paralabrax maculatofasciatus	spotted cabrilla
starry rockfish	Sebastes constellatus	spotted corsair
sevengill shark	Notorynchus cepedianus	spotted cow shark
sand sole	Psettichthys melanostictus	spotted flounder
gopher rockfish	Sebastes carnatus	spotted rock bass
kelp greenling	Hexagrammos decagrammus	spotted rock trout
rock greenling	Hexagrammos lagocephalus	spotted rock trout
squarespot rockfish	Sebastes hopkinsi	spotted rockfish
starry rockfish	Sebastes constellatus	spotted rockfish
spotfin croaker	Roncador stearnsi	spotty
spotted sand bass	Paralabrax maculatofasciatus	spotty
rubberlip seaperch	Rhacochilus toxotes	sprat
shortfin mako shark	Isurus oxyrinchus	spriglio
spiny dogfish shark	Squalus acanthias	spring dogfish
Chinook salmon	Oncorhynchus tshawytscha	spring salmon
spiny dogfish shark	Squalus acanthias	spur dog
Pacific angel shark	Squantina californica	squat
Pacific angel shark	Squantina californica	squato
rainbow surfperch	Hypsurus caryi	squawfish
striped surfperch	Embiotoca lateralis	squawfish
striped bass	Morone saxatilis	squidhound
Pacific staghorn sculpin	Leptocottus armatus	staghorn sculpin

*Common*

pink rockfish  
greenblotched rockfish  
greenspotted rockfish  
lingcod  
shortbelly rockfish  
rainbow trout  
California batray  
California batray  
California barracuda  
greenstriped rockfish  
rosy rockfish  
striped bass  
salema  
tiger rockfish  
Pacific mackerel  
greenstriped rockfish  
rainbow surfperch  
rainbow surfperch  
Pacific bonito  
skipjack  
striped bass  
striped marlin  
corbina  
barred sand bass  
black rockfish  
grass rockfish  
kelp rockfish  
olive rockfish  
olive rockfish  
mola  
ocean sunfish  
barred surfperch  
corbina  
surfmelt  
barred surfperch  
calico surfperch  
canary rockfish  
starry flounder  
common thresher shark  
common thresher shark  
yellowtail  
yelloweye rockfish  
yelloweye rockfish  
Chinook salmon  
common thresher shark  
longspine thornyhead  
shortspine thornyhead  
common thresher shark  
flag rockfish  
leopard shark  
Pacific mackerel

*sci\_name*

Sebastes eos  
Sebastes rosenblatti  
Sebastes chlorostictus  
Ophiodon elongatus  
Sebastes jordani  
Salmo gairdnerii  
Myliobatis californica  
Myliobatis californica  
Sphyræna argenta  
Sebastes elongatus  
Sebastes rosaceus  
Morone saxatilis  
Xenistius californiensis  
Sebastes nigrocinctus  
Scomber japonicus  
Sebastes elongatus  
Hypsurus caryi  
Hypsurus caryi  
Sarda chilensis  
Katsuwonus pelamis  
Morone saxatilis  
Tetrapturus audax  
Menticirrhus undulatus  
Paralabrax nebulifer  
Sebastes melanops  
Sebastes rastrelliger  
Sebastes atrovirens  
Sebastes serranoides  
Sebastes serranoides  
Mola mola  
Mola mola  
Amphistichus argenteus  
Menticirrhus undulatus  
Hypomesus pretiosus  
Amphistichus argenteus  
Amphistichus koelzi  
Sebastes pinniger  
Platichthys stellatus  
Alopias vulpinus  
Alopias vulpinus  
Seriola lalandi  
Sebastes ruberrimus  
Sebastes ruberrimus  
Oncorhynchus tshawytscha  
Alopias vulpinus  
Sebastolobus altivelis  
Sebastolobus alascanus  
Alopias vulpinus  
Sebastes rubrivinctus  
Triakis semifasciata  
Scomber japonicus

*slang*

starry eye  
starry eyes  
starry eyes  
steamer cod  
steamer rockcod  
steelhead trout  
sting ray  
stingaree  
stovepipe  
strawberry  
strawberry  
streaked bass  
striped bass  
striped bass  
striped mackerel  
striped rockfish  
striped seaperch  
striped surf fish  
striped tuna  
striped tuna  
striper  
striper  
sucker  
sugar bass  
sugar bass  
sugar bass  
sugar bass  
sugar bass  
sugarfish  
sunfish  
sunfish  
surf fish  
surf fish  
surf fish  
surf perch  
surf perch  
swallowtail  
swamp flounder  
swingtail shark  
swiveltail  
tail  
tambor  
tambor drum  
tchaviche  
thintail shark  
thornhead  
thornhead  
thresher  
tiger  
tiger shark  
tiny tuna

# CRFS Sampler Manual

Pacific mackerel	Scomber japonicus	tiny tuna
plainfin midshipman	Porichthys notatus	toad fish
albacore	Thunnus alalunga	tombo
tomcod	Microgadus proximus	tomcod
white croaker	Genyonemus lineatus	tomcod
bocaccio	Sebastes paucispinis	tomcod(yoy)
white croaker	Genyonemus lineatus	tommy
kelp greenling	Hexagrammos decagrammus	tommy cod
white croaker	Genyonemus lineatus	tommy croaker
soupin shark	Galeorhinus zyopterus	tope shark
Chinook salmon	Oncorhynchus tshawytscha	tshawytscha
petrale sole	Eopsetta jordani	tsubame garei
bigeye tuna	Thunnus obesus	tuna
bluefin tuna	Thunnus orientalis	tuna
bluefin tuna	Thunnus orientalis	tunny
yelloweye rockfish	Sebastes ruberrimus	turkey red
yelloweye rockfish	Sebastes ruberrimus	turkey rockfish
rock sole	Lepidopsetta bilineata	two-lined dab
rock sole	Lepidopsetta bilineata	two-lined flounder
Chinook salmon	Oncorhynchus tshawytscha	tyee
yelloweye rockfish	Sebastes ruberrimus	vecchia
Mexican rockfish	Sebastes macdonaldi	vernon
Mexican rockfish	Sebastes macdonaldi	vernon (Dana Pt.)
black rockfish	Sebastes melanops	vervi
skipjack	Katsuwonus pelamis	victor fish
speckled rockfish	Sebastes ovalis	viura
widow rockfish	Sebastes entomelas	viuva
tomcod	Microgadus proximus	wachna
walleye surfperch	Hyperprosopon argenteum	walleye seaperch
walleye surfperch	Hyperprosopon argenteum	walleye surf fish
bronzespotted rockfish	Sebastes gilli	warthog
pink rockfish	Sebastes eos	warthog
greenblotched rockfish	Sebastes rosenblatti	warthogs
greenspotted rockfish	Sebastes chlorostictus	warthogs
greenstriped rockfish	Sebastes elongatus	watermelon
skipjack	Katsuwonus pelamis	watermelon
white sea bass	Atractoscion nobilis	weakfish
common thresher shark	Alopias vulpinus	whiptail shark
white sea bass	Atractoscion nobilis	white
lingcod	Ophiodon elongatus	white cod
white sea bass	Atractoscion nobilis	white croaker
copper rockfish	Sebastes caurinus	white gopher
copper rockfish	Sebastes caurinus	white grouper
pile surfperch	Rhacochilus vacca	white perch
walleye surfperch	Hyperprosopon argenteum	white perch
white surfperch	Phanerodon furcatus	white perch
white shark	Carcharodon carcharias	white pointer
Coho salmon	Oncorhynchus kisutch	white salmon
yellowtail	Seriola lalandi	white salmon
skipjack	Katsuwonus pelamis	white skip jack

# Common

white surfperch  
skipjack  
night smelt  
rock sole  
copper rockfish  
ocean whitefish  
Pacific hake  
Pacific halibut  
starry rockfish  
bank rockfish  
speckled rockfish  
widow rockfish  
bocaccio  
bocaccio  
rock wrasse  
yellowtail  
quillback rockfish  
yelloweye rockfish  
yellowtail  
China rockfish  
honeycomb rockfish  
shiner surfperch  
quillback rockfish  
copper rockfish  
yellowfin croaker  
China rockfish  
China rockfish  
olive rockfish  
yellowtail  
yellowfin croaker  
Pacific mackerel  
sablefish  
speckled rockfish  
black and yellow rockfish

# sci\_name

Phanerodon furcatus  
Katsuwonus pelamis  
Spirinchus starksi  
Lepidopsetta bilineata  
Sebastes caurinus  
Caulolatilus princeps  
Merluccius productus  
Hippoglossus stenolepis  
Sebastes constellatus  
Sebastes rufus  
Sebastes ovalis  
Sebastes entomelas  
Sebastes paucispinis  
Sebastes paucispinis  
Halichoeres semicinctus  
Seriola lalandi  
Sebastes maliger  
Sebastes ruberrimus  
Seriola lalandi  
Sebastes nebulosus  
Sebastes umbrosus  
Cymatogaster aggregata  
Sebastes maliger  
Sebastes caurinus  
Umbrina roncadore  
Sebastes nebulosus  
Sebastes nebulosus  
Sebastes serranoides  
Seriola lalandi  
Umbrina roncadore  
Scomber japonicus  
Anoplopoma fimbria  
Sebastes ovalis  
Sebastes chrysomelas

# slang

white surf perch  
white tuna  
whitebait  
whitebellied flounder  
whitebelly  
whitefish  
whitefish  
whitesided paltus  
whitespotted rockfish  
widow  
widow rockfish  
widowfish  
wormbags  
wormy  
wrasse  
yellow  
yellow back  
yellow belly  
yellow jack  
yellow rockfish  
yellow rockfish  
yellow shiner  
yellow-backed rockfish  
yellowbacked rockfish  
yellowfinned roncadore  
yellowspotted rockfish  
yellowstripe rockfish  
yellowtail rockfish  
yellowtail tuna  
yellowtailed croaker  
zebra mackerel  
zipperfish  
zippola  
zurndicky

# GLOSSARY

<b>Ad Clip</b>	A salmon with its adipose fin missing, signifying the fish has a coded-wire tag inserted in its head.
<b>Adipose fin (Ad)</b>	A fleshy, dorsal fin without rays, located toward the caudal fin. Found most notably in Salmonids.
<b>AFS</b>	American Fisheries Society
<b>ALD</b>	Angler license directory (see ALS). A list of licensed anglers used for sampling.
<b>Alternate mode</b>	Intercepting anglers or boats not in the assigned fishing mode of sampling for a sampling assignment when the assigned site is not

	productive.
<b>Alternate site</b>	Intercepting anglers or boats at a site not assigned to be sampled when the assigned site is not productive.
<b>Anaphylactic shock</b>	Hypersensitivity reaction to foreign proteins or drugs, such as may occur when jabbed by spines on fish.
<b>Angler license survey (ALS)</b>	Telephone survey based on contact information (ALD) provided on cover page of sport fishing license sale books. Designed to identify effort data needed to estimate total number of marine recreational fishing trips taken by license holders.
<b>Angler</b>	A person fishing for finned fish or caught finfish, includes persons releasing their catch.
<b>Angler eligibility</b>	Determination of whether a person is eligible (as an angler) to be interviewed by the sampler.
<b>ASF</b>	Assignment summary form used to track sample assignments.
<b>Assignment</b>	An appointment scheduled and issued to a sampler to collect data.
<b>Assignment ID</b>	The specific six digit code used to identify all sample assignments issued.
<b>Bad angler</b>	An angler interview which cannot be obtained because of refusals and language barriers.
<b>Bank</b>	The slope of elevated land adjoining the ocean or bay. Can be rock or an overhanging cliff, and may be reinforced by materials placed there by humans.
<b>Beach</b>	An expanse of pebble, sand, or rock along a shore of an ocean that is affected by tidal action.
<b>Beach and bank (BB)</b>	Survey conducted on beaches and bank site primarily for catch data.
<b>Bias</b>	In statistics, a biased sample is a statistical sample in which members of the statistical population are not equally likely to be chosen.
<b>Bonus (see opportunistic also)</b>	Interviews for man made and private/rental boat interviews sampled outside of the target mode for the site. These are used for catch rate information but not for effort estimates.
<b>California Code of Regulations (CCR)</b>	The set of administrative rules issued by an agency such as Title 14 issued by CDFG for the management of fish and wildlife resources in the state.
<b>CF number</b>	The CF number is a vessel registration number issued by the Department of Motor Vehicles. A CF number is required for every sail-powered vessel over eight feet in length and every motor-driven vessel (regardless of length) that is not

	documented by the U.S. Coast Guard which is used or on the waters of this state
<b>California Fish and Game Code (FGC)</b>	The set of laws (statutes) enacted by the California State Legislature and signed by the Governor of California that governs the management of fish and wildlife resources in the state.
<b>CDFG permit #</b>	In CRFS, the California Department of Fish & Game's identification number for CPFV's. This number is usually found on the CPFV's wheel house in prominent lettering.
<b>California Recreational Fisheries Survey (CRFS)</b>	An integrated state and federally funded sampling program for California marine recreational fisheries. Conducted since January 2004.
<b>CRFS boat</b>	A fishing boat in the PR1 survey for which a sequential number is given and specific data collected
<b>Catch estimate (see total catch estimate)</b>	An expanded number based on a statistical sample with inference to the population.
<b>Catch per unit of effort (CPUE)</b>	The quantity of fish caught per unit of fishing effort, such as number of fish per angler day or pounds of released catch per boat hour.
<b>Caudal fin</b>	The terminal unpaired fin at the bottom rear end of the fish body which may be forked.
<b>California Department of Fish and Game (CDFG)</b>	State natural resource agency that includes marine resource management.
<b>Census</b>	A complete accounting of the take of fish in a fishery.
<b>Charter boat</b>	A CPFV operating under charter for a specified price, time, etc. Usually means the boat is closed to anyone not in the group.
<b>Cluster</b>	Groups of sites considered together for man-made beach-bank, and secondary (PR2) private/rental boat surveys.
<b>Coded wire tag</b>	Coded wire tags are small pieces of stainless steel wire that are injected into the snouts of juvenile salmon and steelhead. Each tag is etched with a binary code that identifies its release group.
<b>Commercial fishing</b>	Fishing in which the fish harvested, either whole or in part, are intended to enter commerce through sale, barter, or trade.
<b>Commercial passenger fishing vessel (CPFV)</b>	Commercially registered vessels which take recreational passenger trips.
<b>County Code</b>	A specific code for each California county. For

	sample sites it is numeric. For angler residence it is character.
<b>Courtesy headtag (see headtag also)</b>	A head tag that is prepared for a salmon head voluntarily brought to the sampler.
<b>CPFV</b>	Commercial passenger fishing vessel (party or charter boat)
<b>Catch survey (catch census)</b>	A survey conducted by intercepting anglers upon completion of fishing to obtain catch and fishing effort information.
<b>CRFS</b>	California Recreational Fisheries Survey
<b>CWT</b>	Coded wire tag
<b>Deadhead (see also pinhead)</b>	Non paying angler on a party/charter vessel.
<b>Discard</b>	Fish not retained by angler and return to the ocean. Fish may be classified as released alive or dead Location of catch, weight, and lengths are obtained if possible.
<b>Disposition</b>	The fate of a caught fish: cut up for bate, filleted, or taken home. Does not include discarded fish.
<b>Directed harvest</b>	Fishing that is directed at a certain species or group of species. This applies to both sport fishing and commercial fishing.
<b>District</b>	The six geographical areas the CRFS divides California into for survey estimation purposes.
<b>Diver</b>	A person under water for a purpose using self contained breathing apparatus (SCUBA) or free diving (holding breath).
<b>Dock</b>	A floating platform with land access used primarily for boat moorage, loading, or fishing.
<b>Effort</b>	Amount of time spent fishing.
<b>Essential fish habitat (EFH)</b>	Those waters and substrate necessary to fish for spawning, breeding, feeding or growth to maturity.
<b>Estimate</b>	An expanded number based on a statistical sample with inference to the population.
<b>Estimated discard mortality</b>	Estimates of discards can be made in a variety of ways, including samples from observers, anglers and logbook records. Fish (or parts of fish) can be discarded for a variety of reasons such as being a non target species for the trip, and compliance with management regulations like minimum size limits or quotas.
<b>Fathom</b>	Used chiefly in measuring marine depth. A fathom equals six feet.
<b>Finfish</b>	Pertains to marine fish with fins for the purposes of CRFS. Does not include crustaceans and mollusks which are designated "shellfish".
<b>Fish and Game</b>	Legal form of CCDFG regulations.

<b>Code</b>	
<b>Fish and Game Commission</b>	The Fish and Game Commission is a separate entity from the Department of Fish and Game and has been involved in the management and wise use of California's fish and wildlife resources since 1870. It is composed of up to five members, appointed by the Governor and confirmed by the Senate. The Legislature delegated to the Commission a variety of powers, some general in nature and some very specific. A major responsibility is the formulation of general policies for the conduct of the Department of Fish and Game. It also has general regulatory powers function, under which it decides seasons, bag limits and methods of take for game animals and sport fish
<b>Fishery management council</b>	A fisheries management body established by the Magnuson Stevens Act to manage fishery resources in designated regions of the United States. Membership varies in size depending on the number of states involved. There are eight regional Councils, including the Pacific Council.
<b>Fishing mode</b>	The method of access to the fisheries. The major modes are made structures (MM), beach and bank fishing (BB), part and charter boat fishing (PC), and private and rental boat fishing (PR). man
<b>Fishing pressure</b>	Number of anglers or boats at a fishing site
<b>Fork length</b>	A measurement used frequently for fish length when the tail has a fork shape. Projected straight distance between the tip of the fish and the fork of the tail.
<b>Geographic information system (GIS)</b>	A method of collecting and presenting data graphically by location or depth of fishing.
<b>Groundfish</b>	There are 90+ species of groundfish managed through the policies of the Pacific Fishery Management Council's Groundfish Fishery Management Plan and under the Magnuson Stevens Fishery Conservation and Management Act and other Federal laws. The 90+ species include the rockfish, lingcod, greenlings, and other species somewhat closely associated with the ocean bottom.
<b>Headtag (see also courtesy headtag)</b>	An inventory tag that is attached to a salmon head which has been collected because an adipose fin clip indicated the presence of a coded wire tag.
<b>Ineligible angler</b>	An angler who does not meet the criteria as an eligible angler for an interview.
<b>Inland Marine</b>	A body of saltwater enclosed by land or barriers

<b>Waters</b>	with a mouth that allows access to the ocean: e.g. San Francisco Bay, Morro Bay, Monterey Harbor, etc.
<b>In season management</b>	Regulatory changes that affect an ongoing fishery during its open season.
<b>Intercept</b>	Encountering and angler or boat in the field to interview.
<b>Jetty</b>	A narrow man made structure that projects into the water from land to reduce wave action in a waterway or harbor
<b>KOD</b>	Kind of day
<b>Latitude</b>	An angular distance north or south of the equator. These measurements are parallel to the equator
<b>Launch ramp</b>	A sloping roadway. Vehicles towing boats on trailers back the trailers down to the water until the boat can float off the trailer.
<b>Logbook</b>	A log of each fishing trip is required by the CDFG to be completed and returned for each fishing trip. The log captures catch and effort information.
<b>Longitude</b>	An angular distance east or west of the prime meridian (in England). These measurements are perpendicular to the equator from pole to pole.
<b>Magnuson Stevens Fishery Conservation and Management Act1</b>	The MSFCMA, sometimes known as the "Magnuson Stevens Act," established the 200 mile fishery conservation zone, the regional fishery management council system, and other provisions of U.S. marine fishery law.
<b>Marine Mammal Protection Act (MMPA)</b>	The MMPA prohibits the harvest or harassment of marine mammals, although permits for incidental take of marine mammals while commercial fishing may be issued subject to regulation. (See "incidental take" for a definition of "take").
<b>Marine Recreational Fisheries Statistical Survey (MRFSS)</b>	A national survey developed by the National Oceanic and Atmospheric Administration and conducted by National Marine Fisheries Service to estimate the impact of recreational fishing on marine resources. MRFSS started in 1979
<b>Man Made (MM)</b>	Man made structure in the water where anglers may fish
<b>Missed boat</b>	A boat, either in the PR1 or PR2 survey, fishing or not, that was observed at the site but not sampled.
<b>MMPR2</b>	Man made and secondary private/rental boat survey fishing modes
<b>Mode (see Fishing mode)</b>	Type of access to water for angling.

<b>National Marine Fisheries Service (NMFS)</b>	A division of the U.S. Department of Commerce, National Ocean and Atmospheric Administration (NOAA). NMFS is responsible for conservation and management of offshore fisheries (and inland salmon). The NMFS Regional Director is a voting member of the Council.
<b>National Oceanic and Atmospheric Administration (NOAA)</b>	The parent agency of the National Marine Fisheries Service.
<b>Non-fishing (NF) boat</b>	Non fishing (i.e. non recreational fishing for finfish) A boat in the PR1 survey that did not target fin-fish
<b>Non recovered species (NRS)</b>	A coded-wire salmon head which cannot be removed for some reason.
<b>Ocean salmon project (OSP)</b>	The Department of Fish and Game's program to determine recreational and commercial catch, effort, and coded wire tag estimates for California's ocean salmon fisheries.
<b>Open bay</b>	A wide bend or curve in a shoreline where wide unenclosed portion of the ocean is formed. Also known as a bight. California examples: Santa Monica Bay, Monterey Bay, etc. Not a true bay.
<b>Opportunistic interviews</b>	Interviews for party/charter and beach and bank interviews sampled outside of a regular assignment. These are used for catch rate information.
<b>Optimum yield (OY)</b>	The amount of fish that will provide the greatest overall benefit to the Nation, particularly with respect to food production and recreational opportunities, and taking into account the protection of marine ecosystems.
<b>Overfished</b>	Any stock or stock complex whose size is sufficiently small that a change in management practices is required to achieve an appropriate level and rate of rebuilding.
<b>Pacific States Marine Fisheries Commission (PSMFC)</b>	The PSMFC is a non regulatory agency that serves Alaska, California, Idaho, Oregon and Washington. The PSMFC provides information in the form of data services for various fisheries.
<b>Party boat</b>	A CPFV boat on which fishing space and privilege are provided for a fee per angler.
<b>Party Charter phone survey (PCPS)</b>	A weekly telephone survey of 10% - 50% of all party/charter boats to determine number of trips taken in previous week and number of anglers on each trip.
<b>PC</b>	Party and charter boats (CPFV's)
<b>Pacific Fisheries Management</b>	A fisheries management body established by the Magnuson Stevens Act to manage fishery

<b>Council (PFMC)</b>	resources in designated regions of the United States. Membership varies in size depending on the number of states involved. There are eight regional Councils, including the Pacific Council.
<b>Pier</b>	A man made structure made with poles projecting from the bottom out of the water and covered with a platform on top so that waves may pass under the platform.
<b>Pinhead (see deadhead also)</b>	Non paying angler on a party/charter vessel.
<b>Private and Rental boats (PR)</b>	Private and rental boat mode of fishing
<b>PR1Primary private boat survey</b>	Primary private boat survey for sites with 90% of the catch of important species.
<b>PR2 Secondary private boat survey</b>	Secondary private boat survey for sites with 10% of the catch of important species.
<b>Pressure check (see site check)</b>	Site visit for the purpose of estimating angler effort (numbers of anglers and boats).
<b>Private access fishery</b>	The private or rental boats that access the water from marinas, moorings and slips (not launch ramps).
<b>Private boat</b>	A boat belonging to an individual not for rent or with paying passengers.
<b>PWC</b>	Personal water craft (e.g. jet ski)
<b>Ramp (launch ramp)</b>	Roadway leading down into the water for the purpose of launching a boat from a trailer.
<b>Random</b>	With no pattern. Occurring sporadically or intermittently in an unpredictable way.
<b>Random Sampling</b>	A method of selecting a sample from a population in such a way that every possible sample that could be selected has an equal probability of being selected.
<b>Random digit dialing (RDD)</b>	A method of dialing telephone numbers used in the MRFSS household telephone survey used to obtain participation and effort data, and information on proportion of fishing households in each county.
<b>RecFIN</b>	Recreational Fishery Information Network. A database managed by the Pacific States Marine Fisheries Commission that provides recreational fishery information for Washington, Oregon, and California.
<b>Recreational fishery</b>	Pursuit of fish for sport rather than for commercial or monetary purposes.
<b>Refugia</b>	An area in the water where living things or their habitat is controlled. May be a place where

	fishing is not allowed so that fish can reproduce, grow and migrate from.
<b>Region</b>	An area of interest. In CRFS, California is split into two subregions; North and South. The split occurs at San Luis Obispo/Santa Barbara county line. This is based on historical fishery related differences
<b>Refusal</b>	A denial on the part of the angler to be interviewed by the sampler or to refuse a key item during the interview.
<b>Rental boat</b>	A boat that is rented without crew or a guide.
<b>Shellfish</b>	Animals with shells such as clams, lobsters, squid and abalone (crustaceans and mollusks).
<b>Site check</b>	A visit to a fishing site to check for effort or CPFV boat status.
<b>Site code</b>	The numeric code used to store the location for a sample.
<b>Site disposition</b>	The code on the ASF which indicates the status of the site visit and the reason for leaving the site.
<b>Site name</b>	The name of a fishing site, such as the name of a fishing pier or launch ramp.
<b>Site register</b>	A complete list of sites with names, codes and descriptions for some geographic area.
<b>Six pack</b>	A commercial passenger fishing vessel which has a license to take not more than six paying passengers at a time.
<b>State site code</b>	A location on the water that has been issued a code to match a name so that map coordinates are automatically found in the database.
<b>Special fishery</b>	An interview in which specialized interview procedures were designated.
<b>Special fishery code</b>	The letter code which designates a special fishery interview.
<b>Species Code</b>	A specific five letter code or three digit code used to record fish taxon on the survey forms.
<b>Status zero</b>	A non-angler coded on the angler form for the purpose of recording a person who was not interviewed.
<b>Systematic</b>	A regular predictable pattern. Used in sampling when true randomness is not possible.
<b>Systematic Sampling</b>	Any sample drawn from a list using a random start and a fixed sampling interval (e.g. every Nth boat). An efficient and functional equivalent to random sampling.
<b>Target (fishing)</b>	Fishing for the primary purpose of catching a particular species or species group (the target species).
<b>Total catch</b>	For CRFS, An expanded number based on a

<b>estimate</b>	statistical sample with inference to the population for all modes combined
<b>Title 14</b>	Regulations adopted by the Fish and Game Commission, through their regulatory powers function, are printed in the California Code of Regulations, Title 14, Natural Resources. There are 28 separate California Code of Regulations “Titles” containing regulations proposed by over 200 state agencies. Title 14 is the section of the California Code of Regulations concerning natural resources. Regulations are printed in the California Code of Regulations (a.k.a. CCR) after they are adopted by the rulemaking agency, approved by Office of Administrative Law and filed with the Secretary of State.
<b>Tournament</b>	A fishing contest for which participants register and compete.
<b>Unbiased</b>	Free of non-random effects that tend to move an estimate higher or lower in prediction of the true population.
<b>Validate</b>	Independent verification, generally by field sampling, of information received through telephone surveys.
<b>Vessel check (VC)</b>	A sample of CPFV activity based on checking sites for docked status and type of activity if not docked.
<b>Vessel ID</b>	A unique seven digit code used by the Party Charter Phone Survey (PCPS) to identify CPFV's. Used on the vessel lists and vessel check form in abbreviated three digit code.
<b>Waking day</b>	Normal hours of the day when people, in general, are active. Generally considered daylight hours.
<b>Wand</b>	A device which can detect the presence of a metallic object, such as an internal tag, when passed over the surface of the fish.
<b>WD</b>	Weekday
<b>WE</b>	Weekend and holidays
<b>Wharf</b>	A fixed platform that originates on land and projects into a harbor, ocean, etc., so that vessels may be moored alongside. See Pier.
<b>WR</b>	Weekly Report now called the ASF

## INDEX

Aboard, 202  
 Abusive Anglers, 23  
 Access, 63, 215  
 Accidents, 23  
     treating pokes, 26  
 Accuracy, 82  
 Accuracy of Location Grid, 82  
 Active, 185  
 Activity Determination, 214  
 Adding, 40  
 Adjusting, 155  
 AFS, 84, 95, 198, 206, 261, 311  
 Alcohol, 14  
 Alive, 170, 198  
 Alpha, 281  
 Alpha Foreign Country Code, 281  
 Alternate Mode, 46  
 Alternate Site, 46, 47  
 Angler Form, 18, 31, 55, 63, 93,  
     102, 103, 104, 105, 107, 108,  
     109, 110, 113, 115, 118, 120,  
     148, 156, 161, 177, 178, 179,  
     188, 204, 207, 221  
 Angler Groups, 77  
 Angler Sub-sampling, 77  
 Angler trip, 9, 11, 107  
 Angler use of Maps, 80  
 Arrival at a PC Site, 187  
 Arrival Count, 162  
 Arrival on Site, 153  
 ASF, 44, 45, 46, 53, 54, 55, 57, 58,  
     61, 65, 66, 111, 123, 134, 149,  
     153, 154, 172, 178, 311, 318,  
     320  
 ASF Coding Tips, 65  
 ASF Item by Item Instructions,  
     57  
 Assigned Mode, 39  
 Assignment, 16, 17, 30, 31, 32,  
     34, 37, 38, 40, 41, 42, 44, 45,  
     48, 49, 51, 53, 54, 57, 58, 60,  
     65, 74, 102, 103, 104, 105, 106,  
     107, 108, 109, 120, 150, 153,  
     154, 155, 162, 172, 192, 194,  
     195, 205, 216, 311  
 Assignment Goals, 41  
 Assignment Selection, 38  
 Assignment Summary, 16, 17, 30,  
     31, 32, 34, 37, 38, 40, 41, 42,  
     44, 45, 46, 48, 49, 53, 54, 57,  
     60, 65, 66, 103, 104, 105, 106,  
     107, 108, 109, 150, 153, 154,  
     155, 162, 172, 194, 195, 216  
 Attire, 15  
 Avid, 2  
 Baggy Technique, 92  
 Bait, 198  
 BB Sampling, 103  
 Beach and Bank, 10  
 Birds, 27  
 Blank, 63, 115, 129, 134, 136,  
     166, 168, 208, 225, 226, 227  
 Blank Example, 136  
 Block, 80, 81, 129, 168, 225, 230  
 Boat Assignment Data, 192  
 Boat Name, 195  
 Boat Types, 148, 156  
 Bottom Depth, 169, 196, 197  
 Box, 80, 81, 168, 226, 230  
 Brochures, 20  
 California Island Codes, 275  
 California Scorpionfish, 25  
 Canvassing, 74  
 Captain, 195, 196, 197  
 Catch Data Collection, 109, 150  
 Catch Location, 158  
 Catch Species, 169  
 CDFG, 1, 2, 3, 8, 14, 15, 16, 18,  
     20, 21, 29, 30, 42, 43, 53, 80,  
     81, 85, 101, 116, 118, 128, 129,  
     161, 179, 195, 215, 221, 225,  
     228, 278, 312, 315  
 Census, 84, 312  
 Chart, 81  
 Charter, 8, 10, 42, 44, 121, 177,  
     179, 205, 206, 211, 222, 312,  
     317, 319  
 Cluster, 38, 49, 54, 58, 312  
 Coding Forms, 31

Coding Tips, 65, 111, 173, 199, 207, 218  
 Complaints, 18  
 Conduct of this Study, 179  
 Cooperation, 181, 215  
 Coordinate, 191, 192, 195  
 Coordinate Data, 192  
 Country, 226, 281  
 County, 37, 61, 84, 120, 131, 164, 195, 217, 226, 279, 313  
 County Codes, 279  
 Courtesy Head Tags, 100  
 CPFV Form, 191, 193, 194, 199  
 CPFV Logbooks, 9  
 CPFV Survey, 8  
 Creel, 84, 159, 313  
 Crew, 81, 119, 221  
 CRFS Boat, 63, 65, 148, 156  
 CRFS Catch and Effort Structure, 6  
 CRFS Intercept Surveys, 8  
 CRFS Overview, 2  
 CRFS Sample, 16, 57, 152, 179, 211, 215  
 CRFS Telephone Surveys, 7  
 Criminal, 23  
 Criminal Activity, 23  
 Cutoff, 75  
 Data Collection, 106, 149, 150, 151, 201, 211  
 Data Entry Tips, 208  
 Days Fished, 157  
 Dead, 170, 198  
 Dealing with Fillets, 93  
 Denied Access to Vessel, 215  
 Departure Count, 155, 162  
 Depth, 81, 158, 169, 192, 196, 197, 226, 231  
 Depthfinder, 130  
 DFG Block, 80, 129  
 Discard Form, 201, 204, 205, 206, 207  
 Discarded Fish, 31, 103, 188, 190, 201, 203, 204, 207, 209  
 Discards, 202, 203  
 Disposition, 61, 126, 127, 206, 313  
 District, 8, 20, 41, 47, 103, 149, 150, 177, 215, 313

Docked Status, 214  
 Dockside, 102, 178  
 Duplicate, 203  
 Duplication, 154  
 Economic, 205, 206  
 Editing, 31, 32, 33, 34, 66, 134, 173, 199, 200, 208, 219  
 Editing and Mailing forms, 31  
 Editing Checks, 34, 66, 134, 173, 174, 199, 200, 208, 219  
 Educating the Angler, 18  
 Effort Area, 122  
 Effort Data Collection, 106, 108, 149  
 Electronic, 20  
 Eligibility, 74, 114  
 Eligible, 56, 64, 127, 190, 195, 203  
 Eligible Fish, 203  
 Equipment, 30, 97  
 Equipment & Supplies, 30  
 Errors, 31, 33, 133  
 Essential fish habitat, 78, 313  
 Estimated Anglers, 64  
 Estimated Effort, 55  
 Examined Catch, 118  
 Example, 37, 39, 50, 56, 57, 60, 62, 67, 81, 120, 121, 123, 132, 133, 136, 137, 155, 162, 171, 173, 174, 213, 220  
 Expenses, 59  
 Fillets, 93, 169, 231  
 Fish  
     measuring, 88  
 Fish Sex, 126, 171  
 Fishery, 2, 3, 16, 19, 63, 64, 78, 111, 115, 116, 119, 178, 181, 190, 203, 314, 315, 318  
 Fishery Background, 2  
 Fishery Violations, 16  
 Fishing Location, 78, 128, 182, 192  
 Fishing Site, 22, 83  
 Foreign Country, 226, 281  
 Fork Length, 87  
 Fork Length Measurement, 87  
 Form Coding Tips, 173, 199, 207, 218  
 Form Differences, 102

Form Item by Item Instructions, 118, 161, 194, 205, 216  
 Form Questionnaire, 161, 221, 228  
 Form Selection, 101  
 Gave away, 127  
 Gear, 34, 122, 123, 166, 167, 197  
 Gender, 94, 133  
 Gender Determination of Selected Species, 94  
 Geographic, 5, 157, 196, 314  
 Geographic and Time Divisions, 5  
 Geographic Codes, 157  
 Goals, 41, 100  
 GPS, 30, 129, 130, 180, 193, 196, 226  
 Grid, 79, 82  
 Group Catch Fillets, 93  
 Handling Fish, 25  
 Handling Wild Birds, 27  
 Head, 96, 97, 98, 100, 101, 171  
 History, 4  
 Identification of difficult species, 85  
 Illegal, 17, 201, 215  
 Illegal Activity, 17  
 Incomplete, 104, 106, 134  
 Incomplete MM Trips, 106  
 Incomplete trips, 104, 106  
 Ineligible, 203, 315  
 Intercept, 8, 38, 116, 315  
 Internet, 38  
 Interview Number, 120  
 Island, 128, 275, 281, 282, 284, 285  
 Island Codes, 275  
 Item by Item Instructions, 57, 118, 161, 194, 205, 216  
 Kayak, 127  
 Kept, 65, 193, 198  
 Latitude, 79, 168, 195, 196, 315  
 Latitude and Longitude, 79  
 Legal, 97, 181, 184, 314  
 Legal Pinniped Deterrence, 184  
 Lengths, 147, 151, 159, 171  
 License, 5, 8, 132, 227  
 Lifting, 24  
 Lifting Fish, 24  
 Location, 54, 78, 81, 82, 83, 101, 117, 128, 129, 130, 135, 147,

151, 152, 154, 158, 180, 183, 192, 194, 201, 206, 225, 313  
 Location Data Collection, 151  
 Location Gathering Guidelines, 81  
 Location of Group Catch, 83  
 Logbooks, 9  
 Longitude, 79, 196, 315  
 Lost, 197, 198  
 Mailing, 31, 32  
 Major Mode, 204  
 Mammal, 158, 185, 186, 315  
 Man Made Structures, 105  
 Maps, 40, 80, 151  
 Marine Mammal Protection Act of 1972, 185  
 Measurement Data, 147, 151  
 Measurement Data Collection, 151  
 Measurements  
     priorities, 87  
 Measuring Board, 87  
 Measuring Catch, 158  
 Measuring Various Types of Fish, 88  
 Meat tenderizer, 26  
 Mileage, 59  
 Missed Boats, 65, 149  
 MM Catch Data, 105  
 MM Effort Data, 105, 106  
 MM Sampling, 104  
 MMPR2 Cluster, 54  
 Monitoring the Boats, 155  
 Multiple Forms per Angler, 115  
 Multiple Samplers on One Assignment, 51  
 NF Boat Types, 156  
 NF Boats, 63, 109  
 No Anglers, 49, 73, 74  
 Non-Fishing, 148, 165, 229, 275  
 Observed Anglers, 197  
 Observer, 181  
 Observer Legal Rights, 181  
 Ocean Salmon Project (OSP), 8, 84  
 Offenders, 215  
 Officers, 16  
 Off-Site, 149, 150, 155, 163  
 Off-Site Missed Boats, 149  
 On-board, 39, 103, 180, 182, 183

On-board Pinniped Observations, 183  
 One Minute Grid, 79  
 On-site, 6, 28, 154  
 On-site Problems, 28  
 Open Water Fishing Sites, 83  
 OSP, 4, 5, 8, 13, 37, 50, 84, 97, 157, 161, 162, 228, 276, 316  
 Outreach, 18  
 Parking, 29, 30  
 Parking Meters, 30  
 Parking Tickets, 30  
 Party Boat, 121, 179  
 PC Definitions, 177  
 PC Scheduling, 45  
 Phone, 8, 101, 133, 211, 319  
 Phone Number, 133  
 Photography, 86  
 Pinniped, 180, 183, 184, 191, 193, 197  
 Postal Codes, 280  
 PR1, 4, 7, 10, 31, 34, 37, 38, 39, 50, 51, 55, 57, 58, 61, 63, 65, 66, 73, 81, 92, 100, 102, 103, 147, 148, 149, 150, 153, 154, 155, 156, 159, 161, 162, 163, 164, 172, 173, 178, 228, 275, 276, 312, 316  
 PR1 Assignments, 50  
 PR1 Form Coding Tips, 173  
 PR1 Form Item by Item Instructions, 161  
 PR1 Form Questionnaire, 161, 228  
 PR2, 7, 9, 11, 31, 48, 49, 50, 54, 57, 63, 66, 81, 82, 102, 103, 104, 107, 108, 109, 110, 111, 119, 120, 127, 134, 135, 147, 221, 222, 312, 316, 317  
 PR2 Sampling, 107  
 PR2 X-Effort between interviews., 110  
 Pressure, 39, 55, 57, 61, 107, 317  
 Pressure Checks, 39  
 Primary Private Boat (PR1) Survey, 10  
 Priorities  
     measuring fish, 87  
 Priority Species, 85, 86, 277

Privacy Act Statement, 30, 114, 115  
 Private Boat, 10, 11  
 Probe, 75, 122, 124, 170, 222  
 Professional Conduct, 14  
 Public, 3, 18, 22  
 Public Outreach, 18  
 Random, 7, 77, 317  
 Rare Specimen Collection, 86  
 Refusals, 43, 44, 134, 215  
 Refusals are Illegal, 215  
 Refused Entry to Site, 29  
 Regulations, 3, 16, 20, 21, 312, 319  
 Released, 65, 158, 198  
 Remedies, 25  
 Reported Catch, 118  
 Reported Species Names, 95  
 Representative Sampling, 202  
 Rescheduling, 39, 41, 49, 50, 148  
 Residence, 84, 131, 132  
 Residence Codes, 84  
 Safety, 21, 22, 24  
 Safety at the Fishing Site, 22  
 Salmon, 4, 8, 65, 84, 86, 96, 97, 99, 100, 101, 149, 150, 155, 157, 161, 162, 173, 228, 277, 278  
 Salmon Equipment, 97  
 Salmon Head Sampling, 96  
 Salmon Heads, 99  
 Salmon Trip Data, 172  
 Saltwater Angling / Diving Records, 87  
 Saltwater Cutoff Points, 75  
 Sample Assignments, 39  
 Sample Dockside, 178  
 Sample Selection, 49, 50, 148  
 Sampler ID, 53, 57, 162, 194, 205, 216  
 Scale, 91, 92  
 Scale Adjustment, 92  
 Scale Care, 91  
 Scheduling, 41, 45, 49, 51, 148, 213  
 Scheduling Checks, 213  
 Scheduling PC Trips, 41  
 Screening, 74, 75, 114  
 Screening for Eligibility, 74

Seal, 65, 170, 186, 187, 197  
 Seal Take, 65, 170  
 Sebastes, 25, 236  
 Secondary Private Boat (PR2) Survey, 11  
 Selecting a PC Boat, 42  
 Sex, 126, 171, 206, 207  
 Site Assignments, 37  
 Site Codes, 84  
 Site Selection Options, 46  
 Skates and Rays, 26, 90  
 Slang Names, 288, 310  
 Smoking, 14  
 Special Fishery, 63, 64, 116, 119, 178  
 Species Tally, 193  
 Start Count, 62, 63, 106  
 Start Time, 196  
 State Postal Codes, 280  
 State Site Code, 83  
 Status, 56, 63, 66, 109, 110, 121, 214, 319  
 Status Zero, 110  
 Stop Count, 63, 107  
 Submitting Forms, 216  
 Sub-region, 6, 41  
 Sub-sampling, 77, 78, 85, 149, 151, 152  
 Sub-sampling Boats, 149  
 Sub-sampling Catch, 151  
 Sub-sampling Lengths, 151  
 Sub-sampling Locations, 152  
 Sub-Sampling Weights, 151  
 Survey History, 4  
 Tag Count, 65  
 Tagging, 98, 99, 157  
 Tape measure, 88

Target Mode, 49  
 Target Species, 117, 123  
 Tickets, 30  
 Tiny Fish, 92  
 Total Effort, 55, 56  
 Tournaments, 29  
 Trailer, 11, 63, 127, 149, 155, 224  
 Trailer Counts, 155  
 Travel, 54, 59, 60  
 Type 2, 94, 118, 124, 125, 126, 127, 131, 190, 203, 207, 223  
 Type 3, 118, 124, 125, 126, 127, 131, 203, 204, 207, 224  
 Unavailable Catch, 124, 158  
 Uncooperative, 23, 181  
 Unidentified Examined Fish, 96  
 Unidentified Reported Fish, 96  
 Validation, 133, 213, 216  
 Vessel, 4, 31, 43, 44, 45, 102, 103, 128, 178, 179, 206, 211, 212, 213, 214, 215, 216, 217, 218, 219, 319  
 Vessel Check Form, 44, 45, 103, 211, 212, 213, 214, 216, 218  
 Vessel ID, 128, 217, 219, 319  
 Vessel Lists, 212  
 Violations, 16  
 Wardens), 16  
 Week, 217  
 Weekend and Weekday Days, 49, 50  
 Weight, 91, 126, 171, 206, 207, 278  
 Weight Measurement, 91  
 Wet Gear Hours, 123  
 X-Effort, 109, 110, 111, 119  
 X-Effort Coding, 109, 111